The American City

FEBRUARY 1959

The Trend - -

Away from "urban sprawl" to urban simplification, comfort and efficiency, typified by this New York City apartment development . . . .

. . . . and this new city hall, Bakersfield, Calif., reflecting clean energetic efficiency, and charm, without ostentatious pomp or ceremony.

See page 3

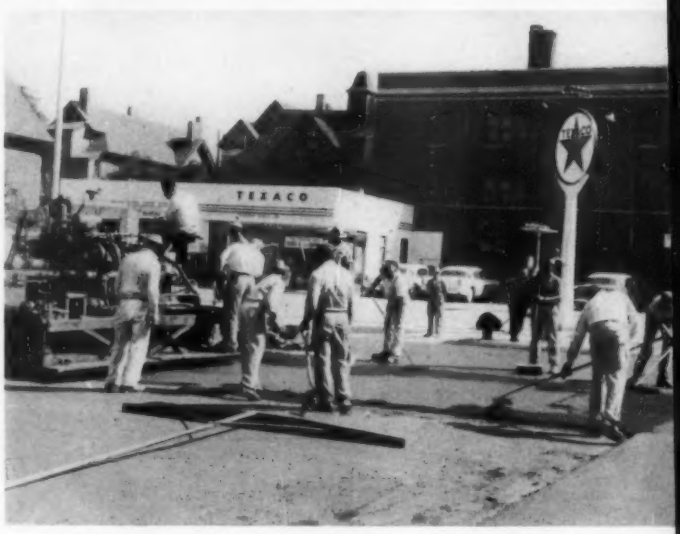
Adding to Milwaukee's mileage of Texaco-paved streets

Year after year, Milwaukee has added steadily to its mileage of plant-mixed Texaco Asphalt paving, serving both business and residential traffic. Van Buren Street, shown here, received a 3-inch surface of hot mix Texaco Asphaltic Concrete, laid in two courses. Many other Milwaukee thoroughfares have been paved with another heavy-duty pavement of the plant-mixed type, Texaco Sheet Asphalt.

The continued growth of Milwaukee's mileage of Texaco-paved streets is the best kind of evidence of satisfaction with the pavement's durability, economy and velvet-smooth riding quality.

This "major league" city is another of the more than 1,500 representative U. S. cities which have paved their streets with Texaco during the past 55 years. Many of these cities have laid more than half-a-million square yards.

Two helpful Texaco brochures for city officials describe the materials and methods recommended for all types of Asphalt paving, suitable for streets, airports, parking areas, etc. Copies can be obtained without obligation by writing our nearest office.



Laying 3-inch hot-mix Texaco Asphaltic Concrete pavement on Van Buren Street in Milwaukee. Long-handled lute in foreground of small photo is used to check pavement's smoothness.

Contractor—Highway Pavers, Inc., Milwaukee.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 1 Minneapolis 3 Philadelphia 2 Richmond 11

TEXACO

REG. T. M.

TEXACO ASPHALT

Golden Anniversary Year
1909-1959

The American City

FEBRUARY 1959

A Buttenheim Publication

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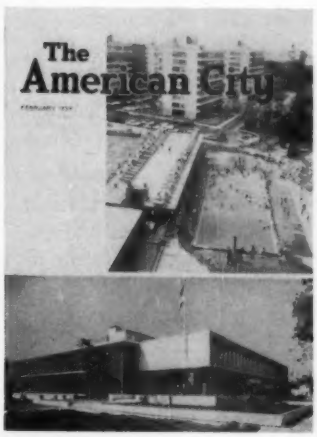

THE COVER PICTURE

The exciting variety of building material that architects can use today, coupled with the stimulating and fast-moving changes that are taking place in urban society, has produced significant effects in housing and public buildings.

The apartment group shown on the cover is part of a Levitt development. The picture has been supplied by the Bethlehem Steel Company whose structural steel was used in the design. The city hall is at Bakersfield, Calif. The picture was supplied us by C. Leland Gunn, city manager.

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1,600,000 Bell Telephone Share Owners

Most are small share owners. Women are the largest group.
More than 250,000 are Bell telephone employees.

The Bell System is an outstanding example of American democracy in business.

Millions of people use telephone service. 735,000 people work for the Bell companies. More than 1,600,000 people own A.T.&T. stock.

The owners of American Telephone and Telegraph Company stock are people in all walks of life.

Most of them are small share owners. No one individual owns as much as 1/30th of one per cent of the stock. Many thousands own five and ten shares. About half own fifteen shares or less.

Women are the largest group and hold the most stock. Over 250,000 of the share owners are Bell telephone employees.

Some 85 per cent of all the shares are owned by individuals. In addition to these direct owners of A.T.&T. securities, many millions of other people have an important, beneficial interest through the holdings of their insurance companies, pension funds, investment companies, unions, savings banks, etc.

The total of direct and indirect owners represents the great majority of all the families in the country.

A.T.&T. share owners, and the owners of A.T.&T. bonds, are the financial foundation of our ability to serve. For without the money they have put in the business you would not have the quality and quantity of telephone service you enjoy today. Nor would there be work and wages for 735,000 employees.

OWNERSHIP IS WIDESPREAD. A.T.&T. share owners live in cities, towns and on farms, in 22,000 communities throughout the country. About 450,000 of the shares are in two names, generally husband and wife. Many hundreds of hospitals, churches, libraries and charitable organizations are among the holders of A.T.&T. stock and bonds.

Obviously, investors will continue to supply capital in the amounts required for present and future needs only if they can expect the Bell System to earn a return on the money they invest that is reasonable in comparison with the earnings rates of other companies and industries.

So telephone progress, and the advantage to all that comes from pushing ahead, begins with good earnings and our faith that Americans want good and improving service at prices which allow a fair profit.

That is the way of life which in our country has stimulated invention, nourished enterprise, created jobs, raised living standards and built our national strength.

As long as we live by this principle—and earnings are sufficient to enable us to carry it out—the future of the telephone is almost limitless in possibilities for service to you.

BELL TELEPHONE SYSTEM

The Way Cities Grow

ONE HAS to fight his way out of a morass of catchwords to see our growing urban society today. Subjective, emotionally-charged terms like megalopolis, urban sprawl, exurbia, stand hysterically in the way of calm objective observation.

One great advantage of our democratic form of government is that anyone with an idea that he thinks will work can generally get a hearing for it. And under our system where authority is gained through the consent of the governed, the same people whose consent is needed to govern, decide which ideas are good and which are bad. In the areas of rapidly growing population, two ideas are gaining in popular support. They are: first adequate open space in relation to buildings and, second, fitness of design.

We have had a great growth of single-family homes throughout the nation. We wish some of the builders had used more imagination and variety in the subdivision layouts and in the designs of the houses. But viewed broadly, they have been able to provide many young people with neat homes to start their careers.

The builders of multi-family housing have watched this growth and have not missed the lessons. The people of today want open space, attractive gardens, pleasant recreational areas, along with comfortable living space. These the builders are learning to provide. The multi-family development in densely built-up New York City, shown on our front cover this month, exemplifies this trend.

These things we know: that for the healthy growth of children, to give them the sense of protection and guidance by their parents, it is hard to beat a single-family home; however, if population densities increase, making land for single-family homes too costly, then multi-family developments of two to three stories in height with ample open area still give the parents supervision

THE AMERICAN CITY

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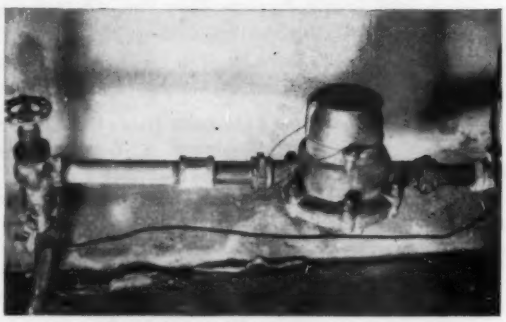
Simplicity of design with fewer working parts *keeps* AMERICAN METERS quiet. Metal to metal clicking noises and delicate parts that set up vibration were never found in these meters. That's why the whisper quiet operation of AMERICAN METERS means also dependable, trouble-free service.

Yes, AMERICAN METERS have the kind of Dependability the Water Superintendent wants.



This AMERICAN METER has been in operation for 22 years without repairs and is still in excellent condition. It is typical of thousands of others whose ultimate life averages 40 years or more.

BUFFALO METER COMPANY
INCORPORATED

2902 Main Street
Buffalo 14, N. Y.

of the children at play, and the children the sense of security of an easily entered household. If the urban growth dictates more intensive use of land, then buildings may well rise, under the provisions of a modern zoning ordinance, to 8 or more stories with special attention given to supervised recreation areas and ample, attractive open space.

Even designers of office structures are aware of the dollar-and-cents value of open space. Space only partially built upon, the architects know, may earn as much as space wholly covered with buildings.

We also like the way some new city halls look today. The building erected by Bakersfield, Calif., also on our front cover, is an excellent example. Anciently, city halls often were temples, and the rulers were worshipped as gods. Consequently, the structures had an autocratic air to them aimed at humbling and intimidating anyone who entered. The Greek and Roman architecture, with its heavy columns, and wearying stairway entrances typified this overpowering style.

The modern municipal building in harmony with our democratic form of government, reflects a feeling of confidence, permanence, beauty, efficiency, and above all, welcome accessibility to the people who are governed and who consent to this government.

These are only some of the patterns that our cities are forming in their adjustment to today's urban requirements. We find them stimulating and encouraging.

Letters to the Editor

Water Rates

We look forward with genuine interest to your series on water rates that began last month (January 1959, p. 95).

I'm very impressed with the high proportion, in this first group, of those reporting recent healthy rate increases. A small sampling, true, but significant enough to suggest a trend.

HARRIS SEIDEL
Supt. of Water and Sewage
Ames, Iowa

The Nightmare of His Honor's Wife

By AGNES B. RENTON

Will the day never come
When I can stay at home
And be alone!!
The mayor goes here
The mayor goes there,
Each night somewhere,
To me it's a nightmare.
To kiss the first baby—he must try
And then the first poppy—he must buy.
Open the new gym—toss the first ball,
Speak at the women's club and the firemen's hall.
Go to Lansing and be back here by five
Then go to a banquet, if you're still alive.
Duck out and present some Christmas prizes,
Duck back in before the toastmaster rises.
Meet the governor—get a smile on your map,
Now hold that pose while the cameras snap.
Talk on the radio for sweet charity's sake,
At the president's ball—cut the birthday cake.
Go to Detroit to some convention.
Meet with the school kids and hold their attention.
Bow and scrape, twist and squirm
Or you'll never get elected a second term.

If the day ever comes when he crowns the queen,
I'll crown *him* right on the *bean!!*

*Mrs. Renton's husband served as mayor of Royal Oak, Mich., from 1939 to 1946. He currently is Judge of the Municipal Court, and, we gratefully learned, for many years has been a reader of THE AMERICAN CITY.

Park Benches

Please accept our compliments for the fine way that you presented our story on park benches (December 1958, p. 29). We have received a surprising number of requests for working drawings of our concrete picnic tables and benches which we are very happy to forward.

EDMUND W. WALLACE
Dept. of Parks and Recreation
Denver, Colo.

Reprint Privileges

It is requested that blanket permission be granted for the Navy to reproduce any articles, pictures, etc., which are published in THE AMERICAN CITY magazine, for distribution to the Navy's Public Works Departments.

If this approval is granted, credit will of course be given to your publication.

H. O. BISHOP
Director Maintenance Division
District Public Works Office
Eleventh Naval District
San Diego, Calif.

EDITOR'S NOTE: Permission given gladly.

Golden Anniversary

Your anniversary editorial has a special meaning for the writer and our engineering firm. Charles F. Mebus referred to in it was my father, who established our consulting practice. He died in June, 1940, in his seventy-sixth year. I had taken the business over just eighteen days prior to his death.

Now perhaps you might extend your thinking forward. The vice-president of our corporation is Charles F. Mebus, II, my son, also a registered professional engineer, the third generation in this field.

GEORGE B. MEBUS
Consulting Engineer
Glenside, Pa.

Street Construction & Maintenance

Truck, tar kettle and roller in one unit enabled Bloomington to double its street-maintenance output last year.

The Bloomington street crew playfully calls the roller the "Fifth Wheel."

A One-Truck, Two-Man Street-Patching Rig

STREET maintenance is a big operation in our fast-growing city. We have 270 miles of streets, with over 200 miles of them asphalt, and fairly new. We are part of the Minneapolis-St. Paul metropolitan complex, and our growth has been, and continues to be, fast. Like most new residential areas, the people insist on good services, and at the same time want to make their tax dollars go as far as possible.

The idea of sending a truck that has to haul a trailer with a tar kettle and then go back after a roller always annoyed us in Bloomington. We studied methods of simplifying this for a long time, and made many trips to other areas with good street-patching crews. Finally we developed the one-unit truck arrangement that we now use and find that we can save one man's time and about double our output of street maintenance work.

The first step in simplification was to mount the tar kettle on the truck. We acquired a long wheelbase International truck and mounted a standard dump box on it. This left room between the dump box and the cab for the kettle, although we had to do a little special fitting to get it in. We called on Rosco Mfg. Co., Minneapolis, to build the kettle to our design.

The next trick was to provide the roller. We did this by removing the bumper and installing the 36-inch-long rolling cylinder controlled hydraulically by double-acting cylinders. When the roller is up, it provides the same clearance as the axle of the truck. When it is down, it raises the truck frame 3 inches at the front axle, thus providing a pressure of 2,400 pounds on the roller when weighed by portable police scales. The operator can raise or lower the roller in 12 seconds.

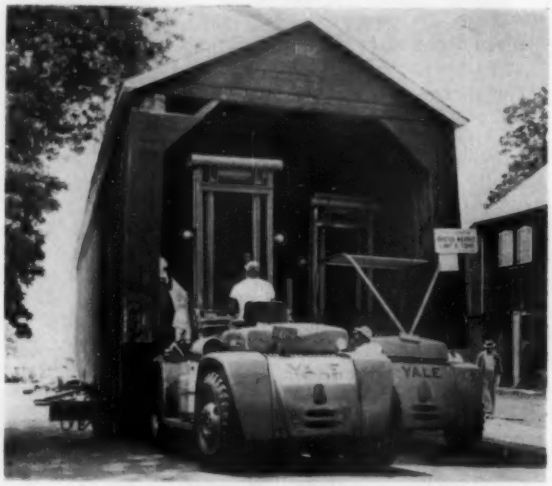
The combined unit is currently being patented by R. L. Dugger and Associates of Minneapolis, and is being produced by S. W. Kelley of Bloomington.

STANLEY KELLEY
Superintendent of Public Works
Bloomington, Minn.

Handle with Care

THE historic old covered bridge at Perkasie, Pa., received the surprise of its life recently, when four Yale lift trucks picked it off its footings and moved it from its 128-year-old site to a public park. The four trucks eased the venerable old bridge through borough streets with no serious damage to the bridge even though many of the timbers were the original ones placed in 1832.

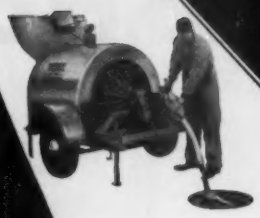
The move had to be made to avoid demolition of the landmark to make way for a more modern bridge.



After 128 years of service Perkasie's covered bridge moves to new surroundings in a public park.

O'Brien Sewerking

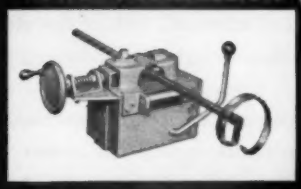
—the new way to clean sewers manhole to manhole ALL BY POWER!



There's a Sewerking to fit your needs

MODEL "800" ILLUS.
(Also No. 250 and No. 350)

THE EXCLUSIVE OB POWER TRANSMISSION



—The secret of handling long lengths of cable by power. Easy shift lever controls movement of threaded cable which is fed through dual gears. A positive, dependable operation with safety overload release. O'BRIEN steel cable contains 4' of ⅛" solid rod stock to each foot of 1¼" cable when coiled. Heat treated and tempered for extra strength.

• When you can clean from one manhole to the next, *set-up time*, *job time* and *man hours* are sharply reduced! Or putting it another way, many more feet of sewer can be cleaned in the same time, at no extra cost! An O'BRIEN SEWERKING, like the model "800" illustrated above, provides the capacity and performance for manhole to manhole cleaning—plus the operating simplicity of an all-power machine. All the operator does is to shift the transmission lever *forward*, to speed the cutting tool cable into the sewer—and *reverse*, to bring it back in the storage drum after the stoppage has been cut away. No manual labor, no time wasted, with *this* sewer cleaning machine that is complete in itself! Once you see an O'BRIEN SEWERKING in action, you'll agree here is a revolutionary way to clean sewers; a vastly improved method of rodding that has reduced costs for many cities 50% to 75%!

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OK—O'BRIEN . . . send us the facts and the SEWERKING CATALOG.

CITY_____ STATE_____

STREET_____

SIGNED BY_____

TITLE_____ DEPT._____

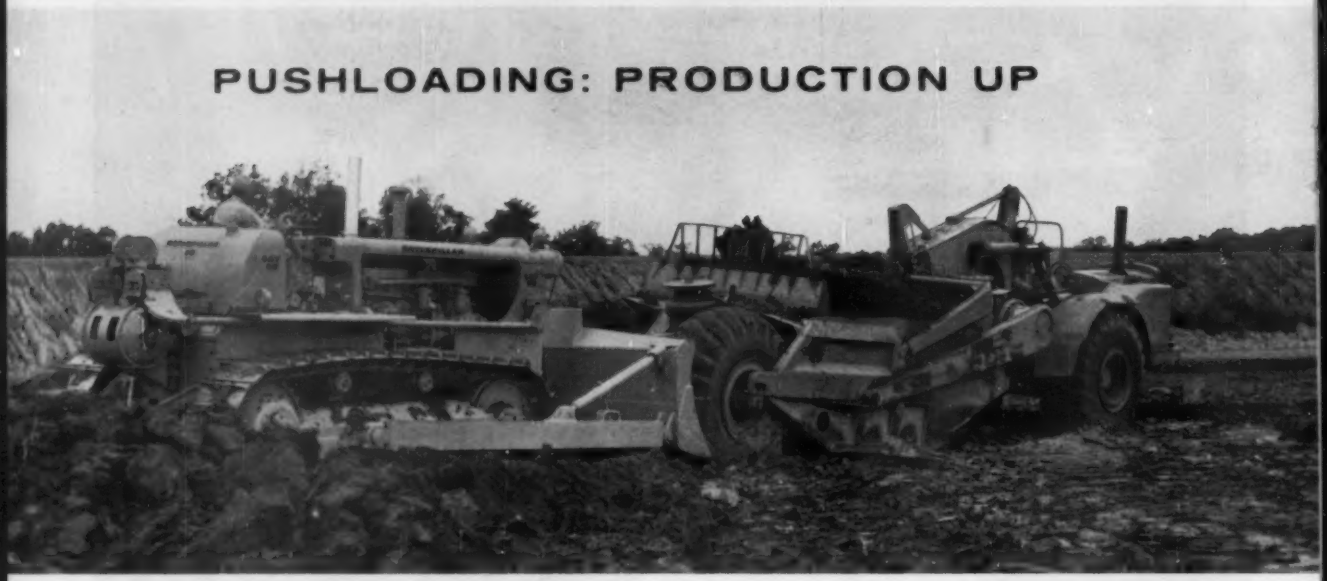
AC-2 9

CATERPILLAR'S
PROJECT
PAYDIRT

***PROJECT PAYDIRT** pays off for you*

NEW CAT D8

PUSHLOADING: PRODUCTION UP



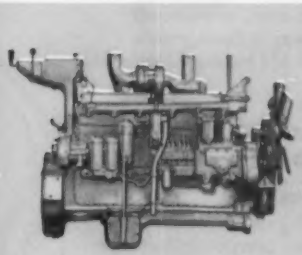
The new Caterpillar D8 Series H Tractor is ready *now* to increase its lead as undisputed king of its size class. A major achievement in Caterpillar's all-out research program, "Project Paydirt" (see box), the new D8 has been proved through a rigorous field testing program.

This D8 is new in design, appearance and performance. It is bigger, more powerful. It incorporates new engineering advances. It is easier to operate.

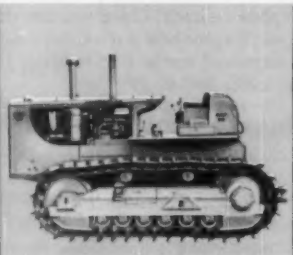
Now—what can it do for you? Here's the answer:

The D8 has been thoroughly field tested on actual jobs. Several of the big new tractors have been at work constantly in every kind of material. Out of the statistics developed, both pushloading and bulldozing production figures are *up*.

This means that you can move dirt faster and cheaper than ever before with a tractor in this size class. You

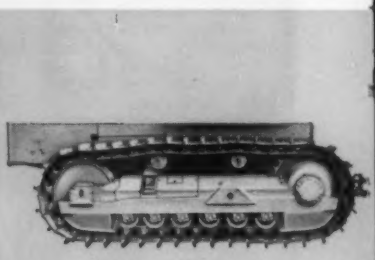


HORSEPOWER INCREASED 18%. The horsepower of the new D8 is up from 191 to 225 at the flywheel, from 155 to 180 at the drawbar. In addition, engine torque rise now is 20%, an increase of one-third. Over-all engine performance has been greatly improved by the addition of a turbocharger.



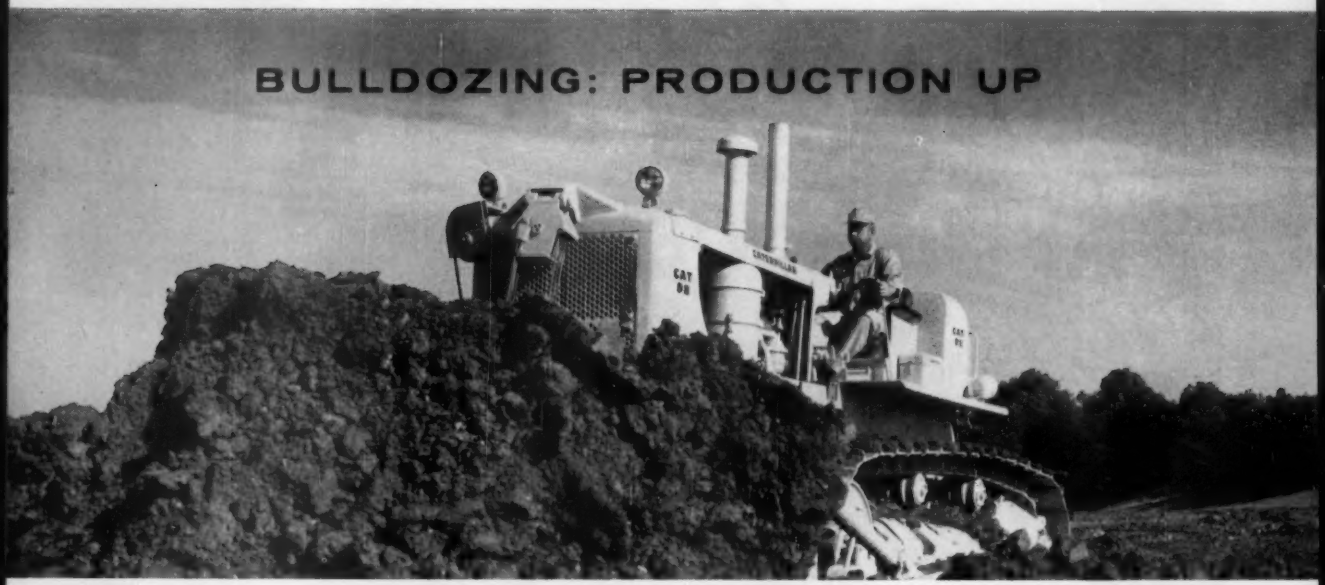
SIZE INCREASED. To make effective use of the new horsepower, over-all weight of the tractor has been increased 4,400 lb. to a total of 47,000 lb. At the same time the gauge has been increased to 84 inches, track on ground lengthened to 114 inches, square inches of contact increased to 5,505.

LIFETIME LUBRICATED ROLLERS AND IDLERS. That's right—lifetime! In a major research breakthrough, Caterpillar has achieved track and carrier rollers and idlers that never require further lubrication until rebuilding. And service life is hundreds of hours longer than with ordinary rollers.



NEW, STRONGER, HEAVIER UNDERCARRIAGE. Every component, such as frames, links, braces, pins, bushings, shoes, has been made stronger by the use of improved materials and heat treat processes to provide longer life. And ground clearance has been increased 50% to almost 20 inches.

SERIES H TRACTOR



get higher production, bigger profits—yet the new D8 is actually *more economical* to own and operate!

But find out for yourself. Get the full story from your Caterpillar Dealer, all the eye-opening facts and figures that can only be touched on briefly here. Then *see* this great new machine at work on your operation as soon as possible. You can't afford not to!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

BORN IN RESEARCH... TESTED IN THE FIELD

DRY-TYPE AIR CLEANER. Here's still another major Caterpillar research development on the new D8—the new dry-type cleaner which removes 99.8% of dirt in the intake air, even under severe operating conditions. The new cleaner can be serviced in 5 minutes, costs a good deal less to use.

SUPERIOR OPERATION. Operator visibility is excellent because of higher deck and changed seat position. Console-type controls make operator's job easier. And on torque converter models, standard foot-operated decelerator can override hand throttle—free operator's hands for other controls.

TWO MORE IMPORTANT OPERATOR CONVENIENCES

HIGHER SPEED. Completely new, long-life, direct drive transmission provides six speeds forward and six reverse. High speed has been increased to 6.3 MPH forward, 6.4 reverse to reduce cycle time. Operator can shift from any forward gear into a similar reverse gear (or vice versa) by simply moving the forward-reverse lever.

DEPENDABLE OIL CLUTCH. By contractor and operator demands, the virtually service-free, easy-to-operate oil clutch has been retained in the new D8. Another important Caterpillar exclusive.

CATERPILLAR'S **PROJECT PAYDIRT**

PROJECT PAYDIRT: Caterpillar's multi-million-dollar research program—to meet the coming challenge of the greatest construction era in history with the highest production earth-moving machines ever developed.

Reader's

Oh, what will you do without water?

America is using 167 million gallons of water a minute!

Demand increases by the hour. By the time today's toddlers are grown, we'll need *twice* as much water.

Where will it all come from? Will you have enough? You'll find the answer below . . .

Now, what can you do about water?

This free booklet, "*WATER*—*make sure you'll always have plenty*," tells how to learn if you're running short, what to do if you are. Write Cast Iron Pipe Research Assn., Prudential Plaza, Chicago 1, Ill.

Printed in your interest by the makers of America's greatest water carrier . . .

CAST IRON PIPE

New Ad Campaign in Reader's Digest Dramatizes America's Water Problem

Cast Iron Pipe Research Association promotes better understanding of water supply and distribution problems

Offers Informative Booklet for Step-by-Step Action at the Local Level

Here's help for you and everyone else directly concerned with the supply, treatment and distribution of water—help that will acquaint the people in your town with the vital importance of this growing problem.

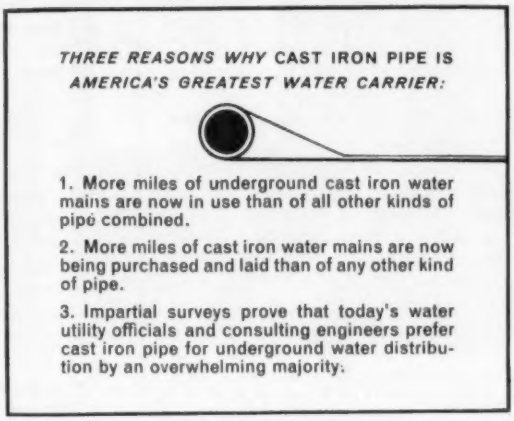
On the opposite page you see the first in a series of advertisements, this one appearing in February *Reader's Digest*. Placed by the Cast Iron Pipe Research Association, these striking advertisements point out to Mr. and Mrs. America how much we depend on a good water system and why we can no longer take it for granted.

Similar advertising will appear regularly this year in *U. S. News & World Report, Nation's Business, Better Homes & Gardens, American Home* and *Sunset* magazines to carry this public service message to millions of community leaders and homeowners.

Free Local Plan-of-Action Booklet

These ads offer a free booklet telling about the water problem. It shows how responsible citizens can acquaint themselves with the needs of their community. It also gives a step-by-step outline of action, telling how they can help their officials extend and improve the local water system through more adequate rate structures or financing.

We'll be happy to send you a free copy of this new booklet. Write to Thos. F. Wolfe, Managing Director, Cast Iron Pipe Research Association, 3440 Prudential Plaza, Chicago 1, Ill.


THREE REASONS WHY CAST IRON PIPE IS AMERICA'S GREATEST WATER CARRIER:
1. More miles of underground cast iron water mains are now in use than of all other kinds of pipe combined.
2. More miles of cast iron water mains are now being purchased and laid than of any other kind of pipe.
3. Impartial surveys prove that today's water utility officials and consulting engineers prefer cast iron pipe for underground water distribution by an overwhelming majority.

CAST IRON PIPE

Our Municipal Notebook

Good Urban Renewal In Smaller Cities

BIG-CITY renewal projects get the headlines, but small city-redevelopment probably is just as profitable, the president of a building firm told the National Association of Housing and Redevelopment Officials recently.

This firm, already building on three big-city redevelopment sites, now has a project in a town of less than 60,000—144 apartment units on a 4½-acre site.

Sharply rising property values and large operating profits are less likely in the medium-size city but these compensations balance matters:

- Wide public interest, including newspaper, TV, and radio support.
- The same high quality of planning as found in larger cities.
- Local redevelopment officials give undiverted cooperation, compared to big-city officials with many projects to worry about.
- Channels to city and federal officials are clearer.

More Sewers Than Ever

DESPITE THE explosive growth of urban areas the number of people not served by sewer systems has decreased substantially, according to a study, *Sewage Works in the United States*, recently issued by the U. S. Public Health Service, U. S. Department of Health, Education and Welfare.

Since 1860 to 1945, between 5 and 8 million people have lived in urban areas not served by community sewer systems. In 1957, this figure has dropped to slightly more than 6 million. Over 2,200 communities have installed sewer systems since 1945, an increase of almost 25% in systems and almost 32% in population served by sewers. Almost 76% of the sewered communities had less than 5,000 population and 95% less than 25,000.

Among 10,500 communities analyzed in the report, 82% use separate sanitary sewers and storm sewers. Less than 14% combine their sanitary and storm sewers, and the remainder have part of their systems separated into sanitary and storm sewers.

Purification of the sewage appears

(Continued on page 18)

Air Pollution Control Notes

Riverside, Calif. Potato Damage

Dr. John T. Middleton, chairman of the University of California's statewide committee on air pollution research, reported recently that air pollution has damaged several hundred acres of potatoes in and around Riverside, Calif. Injury to the potatoes consists of stippling or dotting, resulting in reduced leaf area, premature leaf fall, decreased yield and early aging. Similar stippling has been detected on tobacco, grapes and citrus fruits. Ozone—resulting from open burning, gasoline fumes, burning of natural gas, exhaust fumes of automobiles, cleaning solvents and paints—is cited by Dr. Middleton as the cause of the damage.

Messila Park, N. M.; Lubbock, Texas Cotton Gins

A project of the United States Department of Agriculture's Southwestern Cotton Ginning Research Laboratory at Messila Park, N. M. has reached the point where the laboratory can offer methods of air pollution control for cotton gins. The laboratory reports that air pollution has been virtually eliminated at Messila Park and at gins in Lubbock, Texas. Air pollution at gins comes from incineration of burrs and other trash and from the drifting of fine lint. The two methods used for control are a dust house and high-efficiency cyclone collectors.

Youngstown, Ohio's Recession Effect

The economic recession has had one good effect, according to Walter I. Rauh, smoke engineer of ***Youngstown, Ohio***. During the fall recession last year, Mr. Rauh said, when open hearth furnaces were operating at a level far below the previous year, air pollution dropped some 38%.

Jet Age Air Pollution

Mankind may be flying the Atlantic in six hours these days, but his progress appears to have brought him another air pollution problem.

Local officials of communities near the London Airport have complained about smoke emitted by a Boeing 707 jet airliner during takeoff. Pan American World Airways' first reaction was that the complaints were a bit exaggerated. There is a little smoke, officials said, but nothing to be concerned about. Meanwhile, the British Overseas Airways Corporation reported that there was no smoke from the British Comet Four jet airliner.

Radioactive Air Pollution

The problem of radiation and radioactive fallout is receiving more and more consideration from air pollution control officials. More thought is expected to be given to the problem now that the 15-nation United Nations Scientific Committee on Effects of Atomic Radiation has declared unanimously that fallout from nuclear weapons tests is a hazard to mankind and that "even the smallest amounts of radiation are liable to cause deleterious genetic, and perhaps also somatic, effects." Not only is fallout a problem but peaceful uses of atomic energy may be seen from the fact that more than 2,000 papers from 41 countries were presented September 1st through 13th, when the Second United Nations International Scientific Conference on Peaceful Uses of Atomic Energy was held in Geneva, Switzerland.

San Francisco . . .

For the 1958-1959 fiscal year, the Bay area (San Francisco) Air Pollution Control District is working with a budget of $494,845, an increase of $95,000 over last year's outlay. The Directors of the District said the increase was needed to continue present stock level, hire new personnel, increase public relations work and pay legal fees and hearing costs.

Here's REACH and POWER
to Tackle Any Trenching Job...

The *New* JOHN DEERE 5-POSITION BACKHOE

Reaching out over 20 feet at ground level, digging below 13 feet, dumping at a height of 11 feet, working closely to buildings or fences—the new John Deere 51 Backhoe gives you the kind of working performance you need to speed work and cut costs. What's more, there's plenty of leverage and husky hydraulic power for digging in hard or frozen soil.

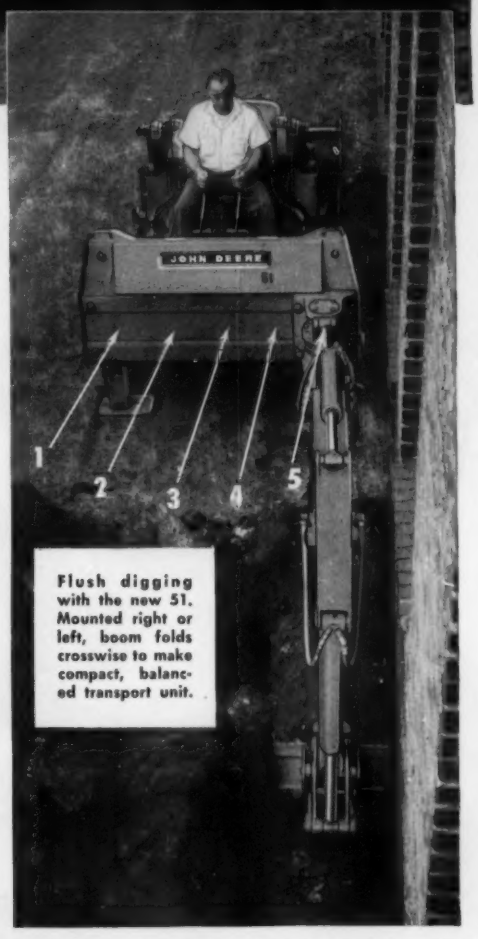
And it's responsive, easily controlled digging power—just two control levers to operate.

FAST CHANGEOVER

Changing the mounting position of the boom and rotary cylinder is amazingly easy. One man with a wrench makes the switch to any of five spots on the mounting pad in 15 minutes!

For the complete story, see your John Deere industrial dealer. Send soupon for free literature.

The center-mounted John Deere 50 Backhoe has boomswing of 205 degrees, 20-foot 3-inch reach, and digs as deep as 13 feet 6 inches.



Flush digging with the new 51. Mounted right or left, boom folds crosswise to make compact, balanced transport unit.

JOHN DEERE Industrial Tractors and Equipment

Completely Engineered for Industry

SEND FOR FREE LITERATURE

JOHN DEERE INDUSTRIAL DIVISION

Moline, Ill. • Dept. D-49-J

Please send me your latest literature on the John Deere Crawler Tractors and Equipment, and information on the John Deere Credit Plan.

*Name*_____

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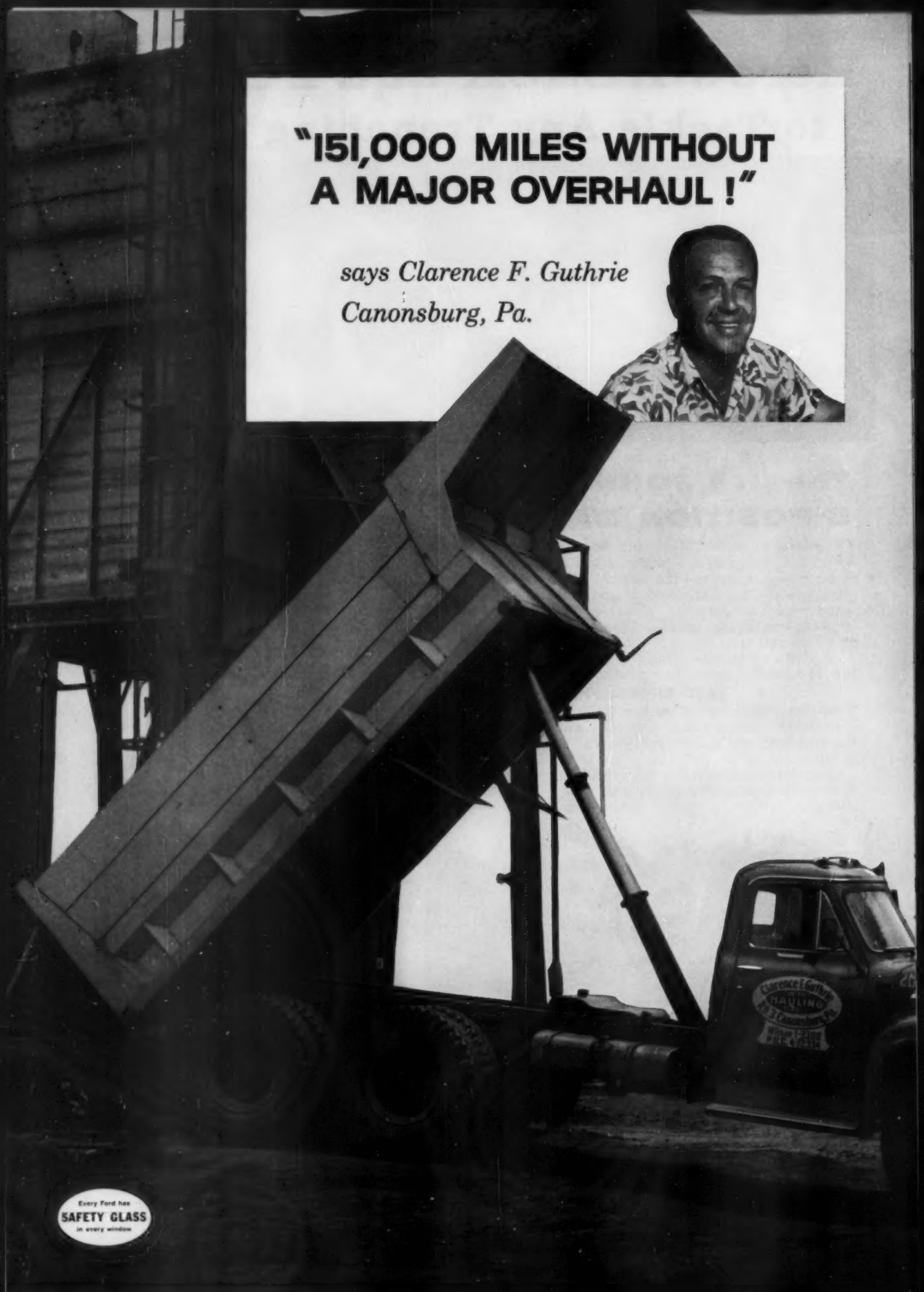
"151,000 MILES WITHOUT A MAJOR OVERHAUL!"

says Clarence F. Guthrie
Canonsburg, Pa.



Every Ford has
SAFETY GLASS
in every window

"Ford's 332-cu. in. V-8 is the hottest thing on the road for its size!

"Our fourteen Ford trucks all have exceptional durability records. Several '55 T-800 dumps, grossing 48,000 lb., have over 200,000 miles on 'em. They went an average of 150,000 miles before we touched the engine. And for power and performance, too, the Ford 332 engine is the hottest thing on the road for its size.

"Ford's better visibility, handling ease and power steering are big factors in our excellent highway safety record. We've had many million-mile accident-free years with our Ford fleet.

"In addition to our sand and gravel business, we have ten Ford F- and C-800 tractors that make long, over-the-road trips hauling limestone one way and steel on the way back.

"On these trips parts availability is very important. Ford Dealers are about everywhere, and they all stock parts. We never get delayed waiting for Ford parts."

Go Ford-ward for savings with '59 Ford Trucks!

Whatever your job . . . wherever you do it—you'll find Ford Heavies and Extra Heavies are engineered and built to do it better! And the '59 improvements in these models will bring still more benefits to your operation.

Greater operating economy with new, faster rear axle ratios and wider choice of transmissions.

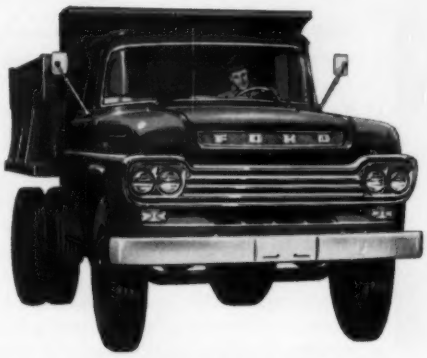
Higher payloads and longer axle life with new, higher-capacity front and rear axle options for most models.

Factory installed tractor package custom-fitted to Ford trucks for safer, more dependable braking.

More efficient parking brake of the internal expanding type has approximately 50% greater stopping and holding ability, requires less than half the operating effort needed for the previously used type.

Yes, the new '59 Ford trucks are here to take you *Ford*-ward for savings, *Ford*-ward for modern style and stamina.

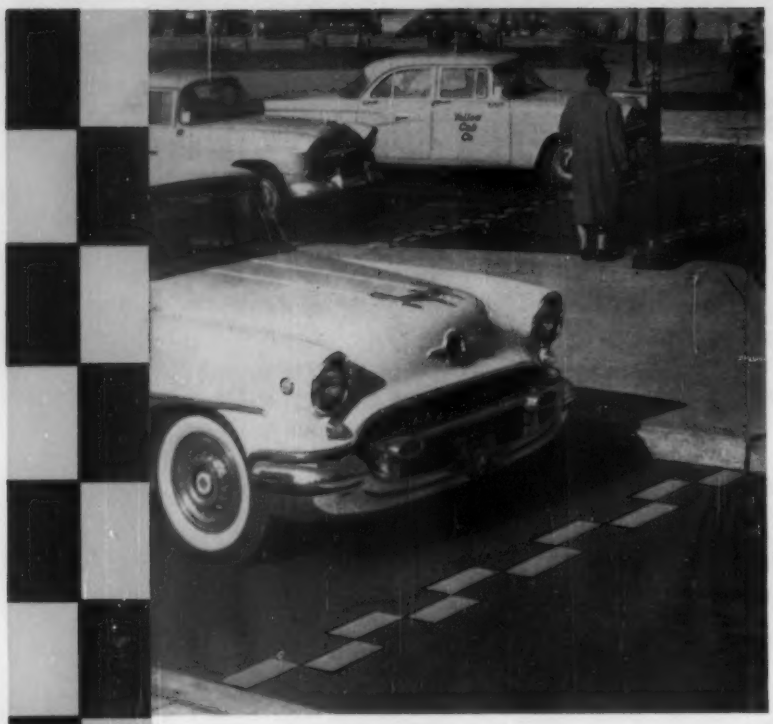
See your Ford Dealer today!



NEW '59 FORD F-600 DUMP carries a maximum GVW rating of 19,500 lb. Now available with optional 6000-lb. front axle for greater capacity, longer life.

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . LAST LONGER, TOO!



NEFSLABS® PLASTIC SAFETY TRAFFIC MARKINGS

Outlast paint 5-10 times...and more!

Stay bright, highly visible through heaviest traffic beatings. Eliminate costs of 10 and sometimes 15 repaintings, save city after city thousands of maintenance dollars. Test them in your city—Free!

Now! Reduce maintenance costs with NEFSLABS—the toughest, longest-wearing street marking you'll ever use. For center lines, limit lines, cross walks, they increase traffic safety because color won't wear off. They keep the same visibility for years and years.

Durable, NEFSLABS repel water, gasoline, oils . . . will not get brittle in sub-zero weather, or soft on the hottest summer days—won't crack or chip in any weather. *Thin*, they won't trip pedestrians or be damaged by snow plows, bulldozers or street cleaning equipment. *Universal*, they come in three brilliant colors (white, yellow, red) and black with variations in sizes and shapes . . . available in rectangles, strips, arrows, letters and numerals. *Easy to apply* with our quick-setting adhesive; no waiting period after installation. Traffic can move immediately.

New Sales Territories are Open for Capable Representatives.

J. W. NEFF LABORATORIES, INC.

Traffic Markings Division, Stockertown 1, Pennsylvania

In Canada: 465 St. John St., Suite 510, Montreal 1, Canada

SEND TODAY for a one foot free sample with adhesive. Test now—before your next repaint! Try it in your heaviest traffic location. Compare with present marking methods. You'll never paint again! J. W. Neff Laboratories, Inc., Stockertown, Pa.

NAME_____

TITLE_____

ADDRESS_____

(Continued from page 14)

to depend somewhat on the size of the community. Those whose populations are less than 500 tend to use oxidation ponds. Those between 500 and 5,000 will use Imhoff tanks, and larger cities appear to prefer the mechanically cleaned settling tanks. When the sewage requires greater purification, cities of less than 25,000 will generally use trickling filters. In larger cities, the activated sludge type of treatment predominates.

Regional differences also play a part in the choice of purification. In the compact, densely populated Lake Erie basin, almost 55% of the plants use the activated sludge method, while in the open areas of the Colorado River basin, only 5% make use of it, whereas 44% use oxidation ponds. In the Northeast basin, predominantly New England states, one continues to find sand filters. In the Pacific Northwest basin, 53% of the plants use high-rate trickling filters.

Charles C. Lenz Traffic Signal Manufacturer

A well-known figure in the manufacturing end of the municipal signal field passed from the earthly scene with the death of Charles C. Lenz, Sr., December 13, 1958 at his home in Easton, Conn. Mr. Lenz, who was

Charles C. Lenz

64, was President of the Marbelite Co., Inc., the Atlas Safety Equipment Co., both of Brooklyn, N. Y., and of the Ruleta Co., Inc. of Bridgeport, Conn. He was a member of the Institute of Traffic Engineers, the International Municipal Signal Association and the International Association of Fire Chiefs.

US RUBBER EXPANSION JOINTS

Drinking heavily for 30 years and still healthy

This U. S. Rubber Expansion Joint has been drinking brackish sea water (at temperatures from 50 to 100 degrees F.) for three decades. It and another identical 36" U. S. Rubber Expansion Joint are at work on the intake lines of #5 condenser at the Reeves Avenue Power Station of the Virginia Electric & Power Company in Norfolk, Virginia, where they compensate for the vibration, expansion and contraction caused by pumping the sea water. These are two of the first rubber expansion joints ever installed *anywhere*.

U. S. Rubber Expansion Joints are the economical, flexible connections that are used in all kinds of pipe lines to take care of misalignment, vibration, expansion and contraction, and noise transmission. They have no moving parts to wear or bind. They can be installed on both new and old piping and equipment.

• • •

When you think of rubber, think of your "U. S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.

US RUBBER

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

When the log jam breaks...

Thousands of tons of timber will be unleashed on the waters of the river. Similarly, our explosive surge of population is bearing down on already overburdened water works facilities in many communities.

New pipelines are essential; but only pipe of sustained high carrying capacity can meet greater demands with constant, predictable volume. That's why efficiency and economy dictate the use of LOCK JOINT CONCRETE PRESSURE PIPE for water supply and distribution lines. Its first low cost, ease of installation, long life, negligible maintenance and permanent high carrying capacity represent immediate and long term economies.

To bolster your water system against the shock of our yearly 3,000,000 increase in population, specify LOCK JOINT CONCRETE PRESSURE PIPE for complete dependability and over-all economy.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

Belt Boulevard Planned

ANNAPOLIS, Md. (population 30,000) sees the value of a circumferential street swinging around the congested areas of the city. Joseph M. Axelrod, city engineer, has included in the city's long-range plans a belt artery of this type to relieve congestion of a steadily growing population.

Mr. Axelrod anticipates that the city's population will rise to 32,000 in 1960, and to 40,000 in 1970.

Employees Get Higher Pay in Larger Cities

IT TAKES 21 more municipal employees per 10,000 residents to operate the nation's 174 metropolitan areas containing 50,000 or more inhabitants, according to a Bureau of Census, Department of Commerce report just released.

These areas, which contain three-fifths of the population of the continental United States, paid nearly 2,500,000 local employees an aggregate of $837 million during the federal Census of Governments month of April 1957.

This expenditure indicates that 68% of the total municipal payroll went to about 60% of the total working force in the nation's communities.

Average earnings of full-time governmental employees are in direct proportion to the population of cities in which they work. For example, areas with a central city containing one million or more inhabitants, paid their teachers an average of $522 for the census month and paid other employees $380.

In areas in the 50,000-99,999 population category, teachers were paid an average of $391 and other employees received $276. Earnings for employees in all population categories between these two closely followed a straight line relationship.

It Pays to be Annexed To Ellensburg, Wash.

ELLENSBURG, Wash., made a dollar-and-cent comparison not long ago and proved that people who live outside the city limits pay more money to do so and get poorer service. The tabulation relates only to those services for which a cash value is readily apparent. City Manager B. H. Mead, Jr. omitted intangibles such as street lighting, street sanitation, 24-hour police protection and other services not being rendered on a property charge basis.

The tabulation showed that a house valued at $10,000 outside the city limits would pay $1,010 per year for taxes, fire insurance, electricity, refuse collection, library, sewerage, telephone and water. The same home inside the city limits would pay only $789. A detailed comparison runs as follows:

	Outside	Inside
Taxes	$ 95	$100
Fire insurance	22	17
Electricity	291	252
Garbage	15	15
Library (2 memberships)	5	none
Sewerage—		
Connection (paid once)	400	300
Service charge	15	12
Telephone	54	54
Water (372,000 gallons)	120	39

The report was prepared for the information of residents outside the city limits, inquiring about the benefits of incorporation The detailed report can be obtained from the city manager.

Women's Conference Defines "Preferred Neighborhood"

HOW DOES the average woman choose a neighborhood where she wishes to live? What leads her to select one area in preference to another?

Questions such as these were discussed at the Women's Conference on Housing held in Washington, D. C. recently under the sponsorship of the National Association of Home Builders and the United Industry Committee on Housing. Eighty women from all parts of the country participated.

Nearness to schools won top priority, no doubt reflecting the response of mothers with children.

Convenience to public transportation was of nearly equal importance, particularly in families with grown children. Both ranked above the need for privacy and the importance of proper zoning restrictions, quiet streets, good neighbors, and distance to stores.

Sidewalks in front of homes won favor among a majority, despite the fact that some delegates liked the "country" appearance of developments without sidewalks. Most wanted a planting strip between the sidewalk and the curb. One group even suggested that the return of sidewalks to the community might encourage children to roller skate and adults to walk enough to keep their legs from atrophying.

Street width, they felt, should be great enough to permit traffic to flow when cars are parked on both sides.

Alleys behind the house won partial approval. For example, 75% of the women from the southwestern United States were in favor of alleys, while not one from the Washington, D. C. metropolitan area liked them.

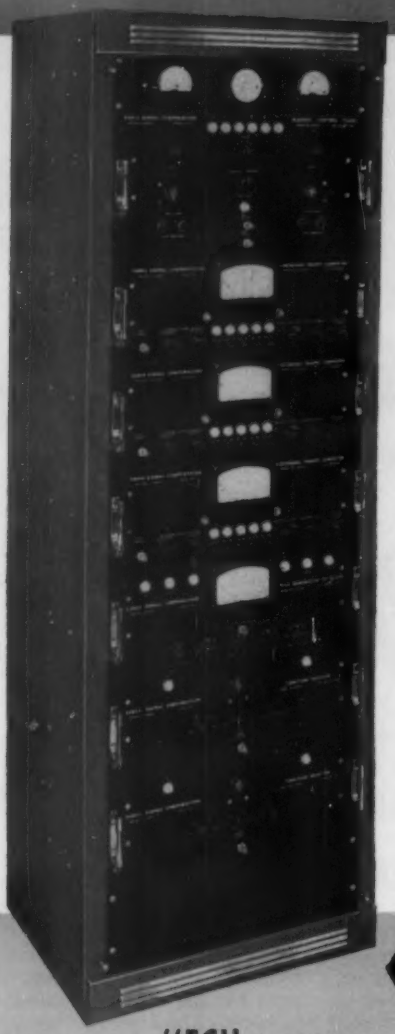
Overall Trends

Over-all trends included a preference for city improvements, such as sewer and water systems as opposed to individual wells and septic tanks; churches located on the perimeter of communities rather than at the heart of a development; neighborhood parks scattered throughout a subdivision rather than a larger community facility; and a preference for regional shopping centers rather than individual neighborhood stores within walking distance. In the case of the latter, it was pointed out that the trend today toward large suburban shopping centers has satisfied the housewife's needs better than the "corner store" of yesterday.

Concerning utilities, the housewives would prefer to have electric and telephone lines buried beneath the ground, although a touch of feminine inconsistency led many to declare they would not want to pay extra for this service. Underground incinerators and garbage cans were preferred. And a proposal to have gas, electrical, and water meters installed in an inconspicuous place outdoors was hailed as a great improvement over the current practice of indoor installation. Main objection to indoor installation was the necessity for admitting strangers into the home to read meters—an objection which could be overcome by proper outdoor placement of meters.

A suburban "Utopia," to judge from the general discussion, has wide streets, trees, convenient schools, public transportation, parks, regional shopping centers and perimeter churches, with such insignia of the 20th Century as utility poles, garbage cans, and television antennae banished from sight.

from EAGLE



comes a NEW and much simplified solution to complex traffic problems

This new "EC" **Vehicle Supervised** System provides virtually unlimited flexibility for your complicated grids and arteries. Control of this highly flexible system is accomplished by introduction of the proper combination of vehicle detection and programming. Result of this combined control is a completely organized and automatic selection of splits, offsets and cycle lengths to meet each need as it arises, without unnecessary delay.

This NEW system also provides:

1. A complete choice of constant and variable settings with respect to cycle length.
2. Standard equipment easily and quickly converted from 2 to 3 or 4 phase operation.

Results: A highly accurate and flexible system having extreme "Built-In" Simplicity.

Simple to understand, set, check, adjust and maintain.

A TYPICAL "EC" *VEHICLE SUPERVISED* MASTER INTELLIGENTLY COMBINES TWO WELL-ACCEPTED PRINCIPLES OF CONTROL

1. Vehicle detection "sampling" during "normal" traffic flow.
2. Programming for **anticipated** heavy volumes of traffic.

A MOST COMPLETE CHOICE OF SYSTEM INTERCONNECTION

1. Multi-Conductor Cable
2. Eagle Monotrol®
3. Radio

Write today for descriptive bulletins! Address Dept. AC-259

THE "EC" *VEHICLE SUPERVISED* LOCAL

Provides a choice of:

4 Independent Splits
4 Independent Offsets
14 Cycle Lengths (standard)

A **Minimum** of 224 "Built-In" Functions or Traffic Patterns available at the intersection.

EAGLE

Eagle Equipment Saves Lives — Saves Time

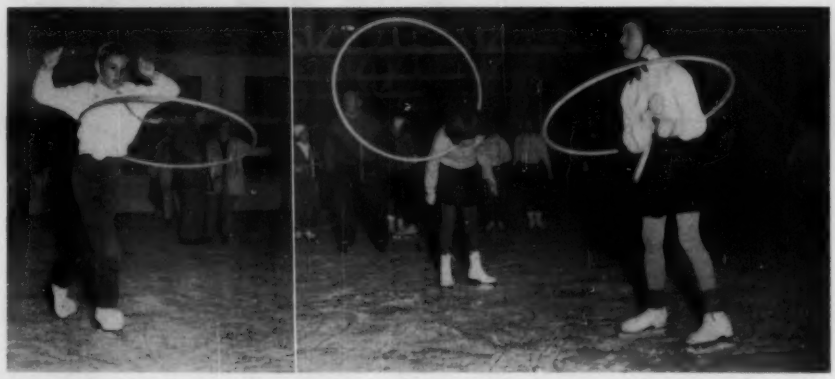
Investigate before specifying

EAGLE SIGNAL CORPORATION

MUNICIPAL DIVISION — MOLINE, ILLINOIS

Hula Hoopscapade

By W. H. RADKE
Supt. of Recreation
Brookfield, Ill.



Try skating around the rink, keeping the hoop gyrating as the young lady at the left is doing, or doing a neck twirl as skilfully as her two friends.

WE IN Brookfield think we have a Hula Hoop First: A contest on ice skates! Our recreation program has for many years, included indoor ice skating on Saturday mornings. Each week we bus some 200 skaters between the ages of 8 and 16 to a commercial rink in a nearby community.

Not long ago a local newspaper asked if we would co-sponsor a Hula Hoop Contest in our park. We countered with the suggestion of holding the contest on ice skates. This idea was immediately accepted. A local building and loan association offered prizes totaling $80 to the winners in the form of savings accounts. By dividing the contestants into age groups all could compete at their own level. We divided the contestants into those younger than ten and older than 11.

An initial qualifying test took the form of a one-minute waist spin. This sounds easy; however, its simplicity was tempered by the fact that none of the contestants had an opportunity to practice on ice skates, since our weather was then in the 60's. After qualifying, the hoopsters vied in a neck spin, a knee spin and finally a lap around the rink with the hoop twirling at the waist—but the hoops fell before the finish of the lap so winners were determined by the distance traveled. The final phase of the contest featured two hoops spinning at the waist on a maximum time basis; this, too came to a quick conclusion.

First place winner in each age group won a $20 savings account and the remaining eight winners received $5 accounts. The novelty of the contest prompted extensive spontaneous publicity both before and after the competition, thereby stimulating interest in the entire community.

Reseed at One-Third the Cost

TORRANCE, Calif. is able to level and reseed park and recreation areas in about one-third the time required by older, more conventional methods, according to C. W. Clemmer, assistant superintendent of parks. Labor cost, he feels, will be cut about half.

The Torrance Park Department is able to produce these savings by using a Sherman-Gill multipurpose soil tool, using it primarily in preparing lawn areas in parks, a job that had previously been done with standard farm implements and hand labor. This meant several passes over the area, with still a lot of hand work to be done after the old equipment was finished. Men who did this work can now be released for other work.

Torrance has the seeder attachment made for use with the Sherman-Gill, which allows Clemmer's crews to complete the entire job of scarifying, grading, leveling, breaking up the clods, pulverizing, seeding and rolling firm all in one pass.

Even the baseball fields come under the spike of the soil tool. Mr. Clemmer finds that he can quickly aerate, smooth, seed and roll an entire ball field in only a few passes with this unit.

This unit saves two-thirds the time and half the cost of leveling and reseeding in the Torrance parks.

you can't beat a GALION.

ROLL-O-MATIC Rollers are designed to meet the ever-increasing tempo of job completion schedules on the national highway program. Write for literature.

THE GALION IRON WORKS & MFG. CO.
GENERAL AND EXPORT OFFICES GALION, OHIO, U.S.A.

GALION ESTABLISHED 1907

MOTOR GRADERS & ROLLERS

Venetian sanitationmen make door-to-door refuse collection.

Barges Serve As Trucks for Refuse Collection

The containers are emptied into motor barges with dustproof loading apertures.

ALL heavy traffic in Venice, Italy moves by boats, barges, and gondolas instead of cars and trucks, and this also applies to the removal of refuse. The collectors use containers mounted on cycles to pick up refuse from the various buildings and bring it to the barge. The barges are equipped with compressor bodies having a capacity of about 10 cubic meters. They are fitted with dustless loading apertures.

A special motor barge services hotels and restaurants. It includes equipment for thorough washing and disinfecting of containers involving six stages, including washing with sea water and successive jets of clear water, high-temperature steam and deodorant. This unit can handle about 120 containers per hour.

Two motor barges with capacities of 36 containers of 120 liters each, collect the containers, bring them to the large motor barge for emptying and washing, and return them.

Another two motor barges collect refuse from barracks, hospitals, colleges, markets and similar places. When filled, they are taken to the docks where a crane lifts the barge superstructure containing the garbage and empties the contents into a larger vessel.

On the Lido, a rather large island, three Fiat 642 vehicles and one Isetta vehicle, with enclosed bodies of about 10 cubic meters capacity, collect the refuse. When filled, they discharge their load directly into barges from a bridge. The barges are in turn towed to the area where the refuse is utilized as fertilizer. The barges form a convoy and are followed by a small boat that picks up refuse that drops from the larger units. Trucks haul some of the refuse to dumps in the open country where the material is allowed to decay, after which it is used as fertilizer. Antifly measures are taken regularly at these dumps.

Constantly on the search for ways of improving service, the city is at present considering a plant designed to produce compost to fertilize the sandy coastal land.

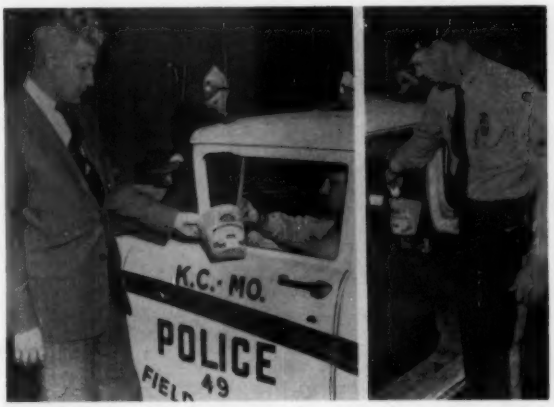
New Kansas City Litter Ordinance

KANSAS CITY, Mo. officials determined to discourage litterbugs passed a new 22-section litter ordinance.

Shortly after this the city played host to the Annual American Public Works Congress and Equipment Show September 28-October 1. The Hydepak Division of Hobbs Trailers, Fort Worth, Texas, an exhibitor in the show, presented Kansas City with litter baskets designed to hang on car dashboards.

Now the city not only has standard refuse accessories, but all its police cars carry colorful plastic litter baskets—a plea for all to profit by the policemen's example. Those who fail to follow the example of the police in keeping litter off the streets face a minimum fine of $5 for the first offense during any 12-month period.

The real blow is reserved for habitual offenders. Repeat performances can result in fines up to $500 or imprisonment up to six months, or both.



Police inaugurate the first phase in Kansas City's all-out drive toward a cleaner city. Dashboard-mounted trash baskets point the way for city dwellers to help.

Public Safety

Fire Engine Rolls Coast-to-Coast

Chief Messner, his wife Helen and their 15-year-old daughter Gaye pose beside their new fire engine with Robert Bennett of American LaFrance.

A FEW months ago officials of the town of Montague, Calif. (population 500) authorized the purchase of a 750-gpm pumping engine. When the town fathers received word that their new fire engine was ready, Montague Fire Chief Spencer Messner and his family were delegated to fly to the American LaFrance factories in Elmira, N. Y., and drive it home.

According to G. J. Halpin, the company's vice president for sales, this fire truck made a longer drive-away trip than any American LaFrance fire truck has made in the past.

Protected Identification Cards

IDENTIFICATION cards carried by officers and officials of the Houston, Texas police department are sealed in tough, clear, pliable film by means of a new machine manufactured by American Photocopy Equipment Co., 2100 W. Dempster, Evanston, Ill.

Among other identifying information, these cards carry the officer's signature and fingerprints, his photo, and signatures of the chief of police and the mayor. Although carried in protective pocket-size leather cases, the cards were still susceptible to stains and wear.

The Apeco Ply-On machine employs duPont's Mylar polyester film. This is fused to the card front and back, affording thorough resistance to oxidation of the inks, weather, perspiration, as well as rendering them tamperproof.

Chief of Police Carl L. Shuptrine says, "This new process gives excellent protection against moisture, perspiration, fingerprints or tampering with signatures. It adds materially to the life and appearance of the police identification card."

County Helicopter In Rough Terrain

FACED with the problem of replacing a half-mile section of telephone line burnt out by forest fire in the San Fernando Valley, Los Angeles Fire Chief Keith E. Klinger turned to the department's Bell helicopter to deliver replacement materials for the new line connecting two fire battalion posts.

Poles varying from 185 to 427 pounds, cross arms, wire and insulators were transported to the scene. Total weight of all the material needed for the job amounted to more than five tons.

The poles were flown in first, over an air distance of 1½ to 2 miles from the supply base. Five to seven minutes were required to pick up a pole and set it down on the spot of installation.

After the poles, the cross arms and insulators were loaded and delivered to the required location. The entire operation, except stringing the wire which was done by the line crew, consumed three hours and 40 minutes of flying time.

Los Angeles County Bell helicopter bringing telephone pole.

REPORTS *on concrete bonding with* THIOKOL *LP/Epoxy compounds*

TEST OF STRENGTH. Concrete beam broken in flexure was then cemented together with a Thiokol LP/epoxy adhesive. Broken a second time, beam failed at point other than the adhesive line. Adhesive stands up though concrete gives way.

#1 *Repairing concrete with adhesives that cure* STRONGER THAN CONCRETE

Through extensive laboratory and field tests, concrete adhesives based on THIOKOL liquid polymers have shown outstanding strength in a wide variety of applications . . . bonding both old-to-old and new-to-old concrete.

They have successfully met the challenge of time, temperature and wear in repairing spalled and scaled areas, broken slabs and cracks . . . in securing cement overlays . . . in skidproofing and sealing . . . and in bonding traffic markers to both cement and bituminous concrete surfaces.

State, municipal and private groups have found in THIOKOL LP/epoxy adhesives a satisfactory solution to many problems of maintenance and repair of highways, buildings, sidewalks, floors. Chances are, you will, too.

Thiokol®
CHEMICAL CORPORATION
780 NORTH CLINTON AVENUE • TRENTON 7, NEW JERSEY
In Canada: Naugatuck Chemicals Division, Dominion Rubber Co., Elmira, Ontario

®Registered trademark of the Thiokol Chemical Corporation for its liquid polymers, rocket propellants, plasticizers and other chemical products.

FOR FULL INFORMATION: Mail Coupon to Dept. 53, Thiokol Chemical Corp., 780 N. Clinton Ave., Trenton 7, N. J.

Gentlemen: Please send me available data on THIOKOL LP/Epoxy adhesives for concrete repair.

Firm_____

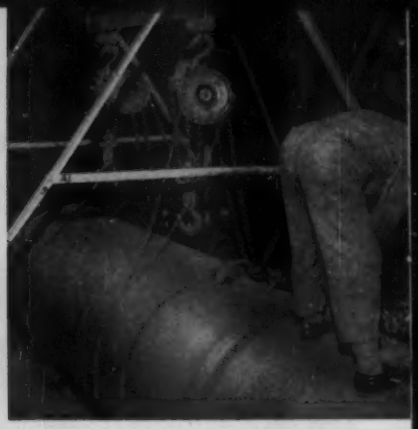
Street_____

City_____ State_____

Your Name_____

1. Straddle carrier brought this piece of pipe 1½ miles through tunnel. Will back out for next piece.

2. Lubricated rubber gasket stretched over steel gasket ring on spigot end of concrete cylinder pipe.



3. Special rig supports new section as pull-jack completes joint. Side jacks handle horizontal alignment.

4. Inside man checks joint tolerances with gauge, as outside man cleans steel joint ring at bell end.

5. Wye section hauled in flat and jacked to vertical position; will take off through tunnel wall, right.

6. Bucket on high lift chutes across installed section to pour cradle for permanent support.

Workmen use new tricks to lay concrete steel-cylinder pipe in unused Cincinnati subway

The workmen who installed Cincinnati's new 48-inch water transmission line were faced with unusual problems, as 11,000 feet of the line's 14,000-foot length were inside an unused subway tunnel. The subway was built beneath Cincinnati's Central Parkway over 30 years ago, but because of changes in the city's growth pattern, was never used.

The above pictures were taken a mile and a half from the mouth of the tunnel. A single piece of pipe was hauled through the tunnel to the installation spot, then transferred to a special rig to be raised or lowered into vertical alignment. Jacks between the pipe and tunnel walls handled horizontal alignment. A pull-jack completed the joint, and timbers were used for temporary support until permanent cradles were poured.

Standard 16-foot lengths, with beveled ends, were used on curves. These units provided deflection up to 4 degrees at the joint. Minor changes in alignment were handled by "cracking" the steel-and-rubber joint of standard-end pipe as much as one half inch.

According to Charles M. Bolton, Supt. of Water Works, concrete steel-cylinder pipe was selected for this job because it would provide high initial, and high ultimate capacity; because it could be expected to give long service with a minimum of maintenance; and because the flexible, rubber-gasket joint would handle the expansion and contraction resulting from greater temperature changes than would be experienced with a buried line.

Black and Veatch of Kansas City, consulting engineers, designed the line. Charles F. Smith and Son, Inc., of Kennett Square, Pa., were general contractors. Price Brothers Company of Dayton, Ohio and Hattiesburg, Miss., manufactured the pipe.

Price Brothers

Water Users Read Their Own Meters

PIPESTONE, Minn. water customers sent in their own meter readings for the past three billing periods. City Clerk Harold E. Lee and Water Superintendent James Henry estimate the new plan saves the city about $750 per year. Previously the city paid $860 in salaries to have more than 1,900 meters read four times a year. Under the self-reading plan, only postage and minor handling costs are involved.

Each billing period the Water Department sends out self-addressed double postcards to the customers. The customer is requested to fill in his name, address, reading date, and meter reading. The customer's account number is written by hand on each card before it is sent out. This number serves as identification in case the name and address is left out or not legible. Accounts not returned within seven days receive an estimated bill based on 1½ times the water usage of the previous quarter.

Few Exceptions

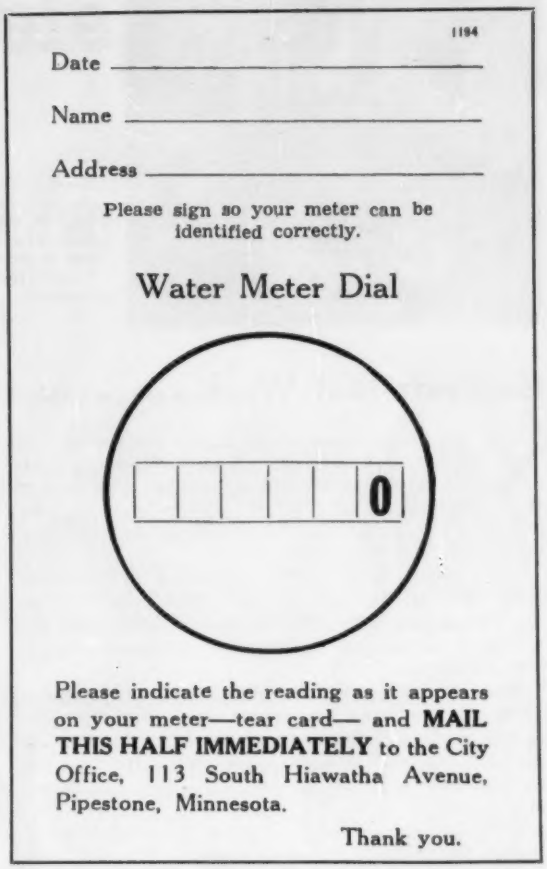
Customers send in about 96% of the readings. A few elderly people requested that city personnel continue to read their meters and the Water Department finds it advantageous to continue reading certain commercial or industrial meters that are rather complex. Department employees also read the meter whenever a family moves in or out of a house.

City Clerk Lee and Water Superintendent Henry felt the idea should work since the local Rural Electrification Administration encountered no particular difficulty over several years' experience with customers reading their own electric meters. They received permission from E. H. Beal, councilman in charge of the Water Department.

Public reaction is very good. They like to read their own meters and the department is no longer bothered with complaints about meter readers walking on newly waxed or mopped floors, failing to knock before entering, or other invasion of privacy complaints.

It might seem that there would be an opportunity to cheat, but this is not the case. The department maintains records of previous years' water usage by all customers and checks unusual readings.

Readers interested in more information concerning this plan may write to H. E. Lee, city clerk.


1194
Date
Name
Address
Please sign so your meter can be identified correctly.
Water Meter Dial
0
Please indicate the reading as it appears on your meter—tear card— and MAIL THIS HALF IMMEDIATELY to the City Office, 113 South Hiawatha Avenue, Pipestone, Minnesota.
Thank you.

Pipestone water users fill in this card and send it to Water Department each billing period. Customer's account number is in upper right hand corner.

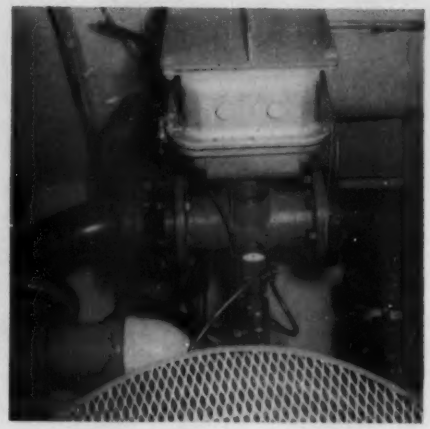
Elevated Tanks, Standpipes and Reservoirs

A WATER tank is a standpipe when it rests on the ground and has a diameter less than its height. It becomes a reservoir when its diameter is greater than its height. And it is an elevated tank when it is raised off the ground. This was explained by J. A. Morley, Pittsburgh-Des Moines Steel Company, at the recent meeting of the New England Water Works Association in Poland Spring, Maine.

The standpipe or reservoir will be used where a natural elevation is available to elevate the water so that most of it will flow by gravity at adequate pressure to the point of use. The elevated tank is used where no natural elevation is conveniently available to provide this pressure.

The most economical height of a flat-bottom tank is between 25 and 50 feet. However, other local conditions usually dictate the height. The capacities of elevated tanks vary by 100,000 gallons up through 500,000 gallons; by 250,000 gallons through 1,500,000 gallons; and by 500,000 gallons above that figure.

Generator-motor combination (left) converts sewage gas into heat for the digesters and electric power for plant use.



Heart of the automatic sludge pumping system (right), the lucite rod and photo-electric cell combination prevents excess water from being pumped to the digesters.

Gadgets that Work

NOT one to tolerate waste or inefficiency, A. L. McGee, superintendent of sewage treatment at Chehalis, Wash. devised three "gadgets" that provide for more economical and efficient operation of the sewage treatment plant.

The Chehalis plant started operations in December, 1949. Gas production averaged 12,500 cubic feet per day for the first year, of which about 10,000 cubic feet was used for digester heating and the rest burned in a waste burner.

The city had an M330 model Continental engine in stock. After some experimentation, Superintendent McGee made a carburetor, revamped the ignition and modified the head to burn sewage gas. He then purchased a secondhand 220/440 volt, 30-kw generator and connected it to the engine and installed switch gear to operate the electrical panel independent of the Public Utility District power supply. The hot water from the engine was then connected to the heat exchanger and provisions made to recover heat from the engine exhaust. About 350,000 BTU's per hour are recovered from the engine for digester heating plus most of the electric power needed to run the plant.

This installation went into service October 12, 1953 and to date it still operates perfectly. Oil consumption equals one quart every other day—the same as when it first went into service. It has the original bearings, rings and pistons and received one valve grinding and one complete oil change per year. It runs 24 hours a day, starts without auxiliary fuel, and no carbon forms in the combustion chambers. The sewage gas is not purified, but is used as it comes from the digester.

Automatic Sludge Pumping

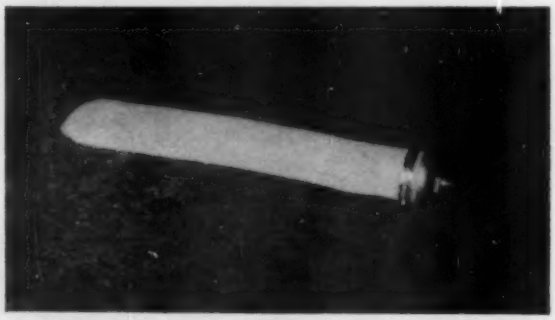
McGee's second "gadget" consists of an automatic sludge pumping system controlled by a photoelectric cell in conjunction with a lucite rod probe in the sludge line.

A program timer set on an hourly basis starts the sludge pump and an interval timer allows the liquid to be pumped for a predetermined time for sampling. If the sludge is thick enough to prevent penetration of light to the photoelectric cell, another switch activates the pump to keep it operating. As soon as the sludge thins down the light reaches the cell and the pump shuts down. Should the sludge be too thin at the start of the cycle, the pump will run only for the predetermined sampling time.

This system also went into service in 1953. It makes sludge pumping completely automatic with the assurance that neither too much water is being pumped into the digester nor too little sludge is being pumped, thus resulting in clogged lines, as can happen with straight program timing.

Nonclog Diffusers

McGee's third "gadget" eliminates the headache of cleaning air diffusers at frequent intervals. After considerable experimentation he discovered an acid-proof polyethylene material of the correct porosity on the market that is tough enough to withstand all the abuse encountered. Sock diffusers made of this material have given excellent service since 1953 with no maintenance required and no blinding of the diffuser experienced. Since then several treatment plants in Washington and Idaho have tried them with equal success.



Sock-type air diffusers made of acid-proof polyethelene material eliminate the need for frequent cleaning.

Absolute Rigidity Means

. . . longer tool life

. . . perfect connections

Rigidity on the main . . .

Widely spread chain hook washers of the new B-100 are deeply recessed in yoke—cannot slip off when used on large diameter pipe. Unique design of chain hook keeps chain from twisting while tightening. They all add up to absolute rigidity on the main—machine cannot move during drilling, tapping or inserting operations. Broken tools and leaky connections are eliminated.

Rigidity in the boring bar . . .

Three widely spaced boring bar bearings, two in the feed sleeve and one at extreme bottom of boring bar, assure perfect boring bar alignment. Molded nylon lower bearing supports drill when it first contacts the main. Pipe curvature cannot deflect drill—tools give longer effective life. These three boring bar bearings guarantee perfect centering of tool and stop, assuring a pressure-tight connection.

These are only a few of the many advanced features of the new Mueller B-100 Drilling, Tapping and Inserting Machine. They are typical, however, of the attention to detail in research, design and engineering that become a part of every Mueller product used by the water industry.

MUELLER® B-100 Machine

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

Street Cleaning & Snow Removal

Dustless Sweeping Regardless of Temperature

This waterless sweeper keeps the streets of Warrensville Heights clean both summer and winter without troublesome dust.

STREET cleaning in Warrensville Heights, Ohio continues both in summer and in winter—and in a dustless manner. To carry out such a program, the village purchased a Tennant Model 100 vacuum-type street sweeper last April and has kept it busy ever since.

The waterless feature of our sweeper takes on added importance during the winter season. At this time of the year freezing weather causes trouble to sweepers using water sprays. Now we are able to use our sweeper in the coldest of weather—and need not worry about the dust problem.

Warrensville Heights is a typical fast-growing suburban community of 9,000 people. The economic growth of the Cleveland area resulted in a 100% increase in our population in the last five years. This meant new homes, schools, stores and, of course, many new streets. We now have about 50 miles of streets.

Some three or four years ago, village officials recognized the need for a piece of equipment to keep these streets clean. The search for the machine of our choice ended with the purchase of the Tennant 100.

DALE W. HERRON, *Service Director*
Warrensville Heights, Ohio

Wilkes-Barre, Pa. Saves with Rock Salt

REPLACING cinders with rock salt for snow and ice control produced noticeable results in Wilkes-Barre, Pa. These include:

1. A 6% reduction in the motor vehicle accident rate during the winter period.
2. A one-third reduction in traffic fatalities during the same period.
3. Substantial savings in the cost of hauling snow control materials.
4. Elimination of the need to clean cinders from streets and catch basins resulting in further savings.
5. Greater public convenience in that it is easier to remove salt than cinder dirt and grit.
6. A savings in time permitting employees to do other necessary work.

Mrs. Ethel A. Price, director of the Department of Streets and Public Improvements made the switch in the winter of 1956-1957. That year Wilkes-Barre experienced 18 snowstorms and each time approximately 30 tons of rock salt were spread over 114 miles of improved and unimproved streets. The city used 650 tons of salt at a cost of $13,688 plus $4,843 for labor. Formerly about 330 tons of cinders were applied during each storm.

The 1957-1958 winter season brought ten snow or ice storms to the city. Two of them were very severe and one required a full eight days to control and clear away. That season the city used 570 tons of salt costing $11,846, plus $10,411 for labor.

The first three storms of this winter required the application of 18 tons of salt costing $371. Labor costs amounted to $1,225.

RIGHT...from the top down

A good, dependable water supply system is no better than its beginning. The best beginning is a Layne drilled water well. Layne is the largest water well drilling organization in the world with over 75 years experience. Trained crews operate over 500 drilling and service rigs throughout the country.

Layne service doesn't stop there. A dependable Layne Pump specially designed for the job to deliver a specified QUANTITY of water, and Layne water treatment service to supply the exact QUALITY of water desired, are part of a complete job with undivided responsibility. But, that's not all. Layne maintenance and repair service wraps up the complete package. Your nearby Layne Company is as close as your telephone, so, call on Layne for a dependable water supply, right . . . from the top down, all backed by Layne Research.

LAYNE & BOWLER, INC., MEMPHIS
Offices and Factory, Memphis 8, Tenn.
WATER WELLS • VERTICAL TURBINE PUMPS • WATER TREATMENT

Layne

WELL DRILLING
and other allied Drilling Services

ASK THE MAN FROM YOUR NEARBY LAYNE ASSOCIATE COMPANY—Layne-Arkansas Company, Stuttgart, Arkansas • Layne-Atlantic Company, Norfolk, Virginia
Layne-Central Company, Memphis, Tennessee • International Water Corporation, Pittsburgh, Pennsylvania • Layne-Louisiana Company, Lake Charles, Louisiana
Layne-Minnesota Company, Minneapolis, Minnesota • Layne-New York Company, Linden, New Jersey • Layne-Northern Company, Mishawaka, Indiana
Layne-Northwest Company, Milwaukee, Wisconsin • The Layne Ohio Company, Columbus, Ohio • Layne-Pacific, Inc., Seattle, Washington • Layne Texas Company, Houston, Texas
Layne-Western Company, Kansas City, Missouri • International Water Supply, Ltd., London, Ontario, Canada • General Filter Company, Ames, Iowa (Complete Water Treatment)

you can't measure MACK

Certainly, Mack fire apparatus can meet the most demanding specifications. But specifications can never measure Mack quality—the end result of such factors as these:

Mack uses the finest materials for utmost strength without excessive weight.

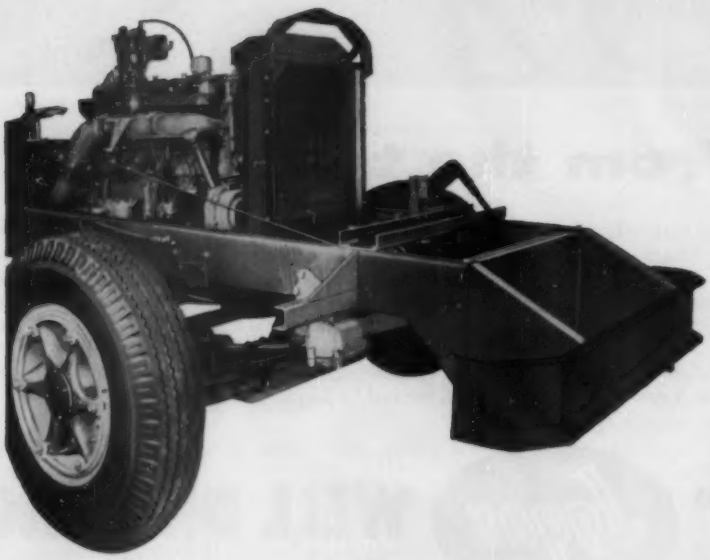
Mack's standards of craftsmanship and precision are unparalleled in the industry.

Mack exhaustively tests every vital component and sub-component of every Mack through each stage of production.

Mack custom-builds the units that best meet your requirements of terrain, climate and hazards.

Mack offers 58 years of experience in building heavy-duty vehicles whose dependability has made "Built like a Mack" a national expression for stalwart performance.

To meet the mounting fire-protection needs created by our tremendous national growth, more than ever you need the finest equipment available. That means Macks. Remember, Mack controls the performance of its finished vehicles by making more of its own components than anyone else in the industry . . . and to the highest standards. Mack Fire Apparatus, Sidney, Ohio. In Canada: Mack Trucks of Canada, Ltd.

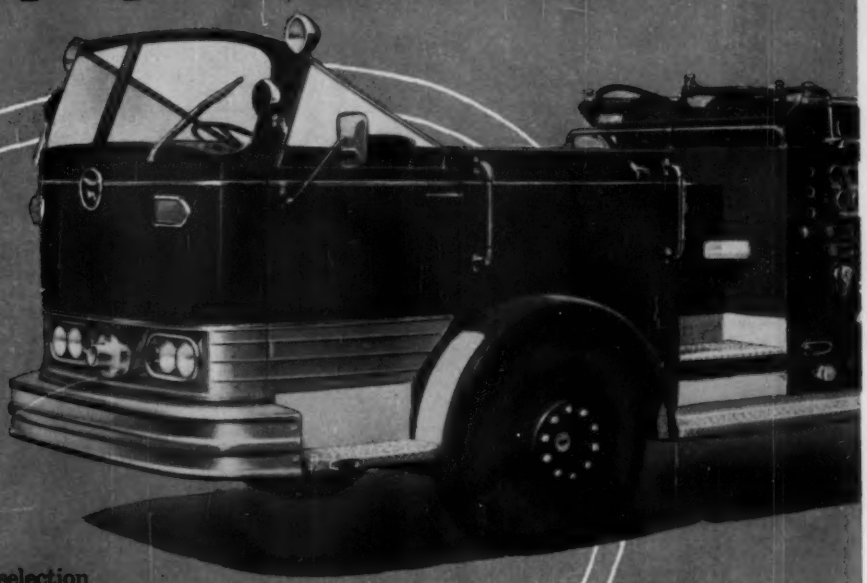


A double front bumper is part of the massive protective armor that surrounds and safeguards the driver on Mack cab-forward models. Throughout the rugged Mack frames, maximum strength, safety and long life are achieved through the use of heat-treated, chrome manganese steel.

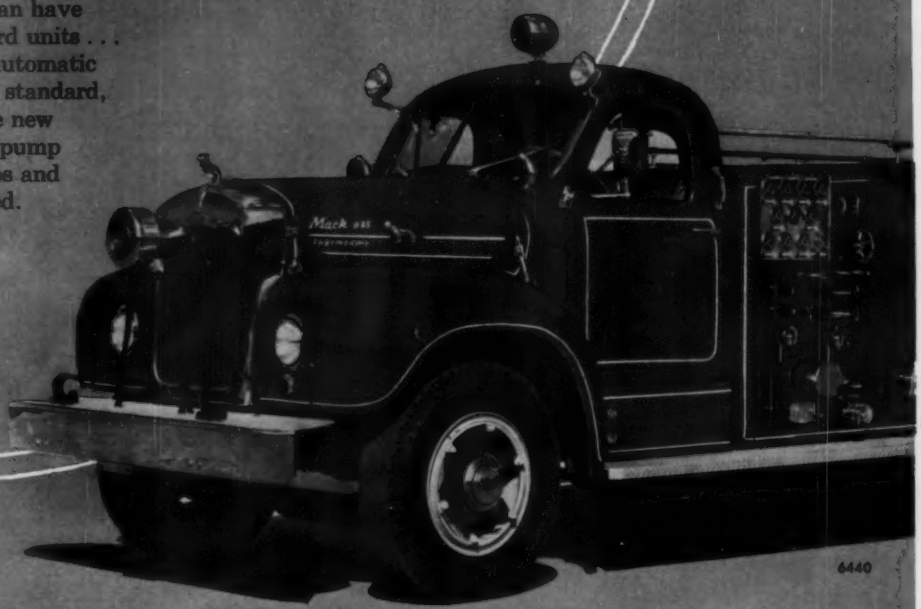
COMPLETE LINE OF PUMPERS — 500 TO 1250 GPM . . .

Layne-Northwest Company, Minneapolis, Minnesota • The Layne-Ohio Company, Columbus, Ohio
Layne-Western Company, Kansas City, Missouri • International Water Supply, Ltd., London, Ontario, Canada • General Filter Company, Ames, Iowa (Complete Water Treatment)

QUALITY
by specifications



Apparatus as you want it. From the wide selection of Mack models you can have cab-forward or standard units . . . with conventional or automatic transmissions . . . with standard, two-stage pump or the new Uni-Control Hi-Stage pump . . . with the gear ratios and built-in extras you need.



6440

MACK *first name for* FIRE APPARATUS

SQUAD AND HOSE WAGONS . . . AERIALS 65′ TO 100′ . . . COMBINATION LADDER TRUCKS

FREE Catalogs

These Catalogs Will Help You

By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given or use the Post Card on the insert following pg. 50

Detects Holidays in Pipe and Metal Surfaces

362 Critical inspection of pipe, field joints, surface tees, valves and fittings wrapped in polyvinyl and polyethylene protective tapes is done economically by the Model LS/1 portable electrical detector. For details, write TINKER & RASOR, 417 ACOSTINO RD., P. O. BOX 281, SAN GABRIEL, CALIF.

Encourages Community Neatness

363 Attractive waste receptacles strategically placed in public areas do much to abet community cleanliness. Torpedo receptacles have steel bodies, stainless steel trim, self-closing push doors, galvanized inner containers. Their outer shell lifts easily for quick emptying. For details, write THE F. H. LAWSON CO., CINCINNATI 4, OHIO.

Air Control Valves Aid Water Lines

364 Crispin air valves keep long water pipelines open for safe, economical operation. They are available in several models, which are fully described in literature obtainable from MULTIPLEX MFG. CO., DEPT. E, BERWICK, PA.

Protects Identification Cards

365 Identification cards too quickly become soiled and worn. The Apeco Ply-On machine licks this problem by fusing tough, clear, pliable Du Pont Mylar polyester film to the front and back of cards, thus rendering them tamperproof and thoroughly resistant to stain and wear. For details, write AMERICAN PHOTOCOPY EQUIPMENT CO., EVANSTON, ILL.

New Street Light

366 A new luminaire for streets and parking lots known as the "METROPOLITAN," utilizes either clear or color-improved 100-, 175- and 250-watt mercury lamps. For details, write WHEELER-FULLERTON LIGHTING DIV., WHEELER REFLECTOR CO., BOSTON, MASS. AND NORWALK, CONN.

Shade Tree Care, Fly and Mosquito Control

367 Facts on Dutch Elm disease and fly and mosquito control are offered by JOHN BEAN DIVISION OF FOOD MACHINERY AND CHEMICAL CORP., LANSING 4, MICH., manufacturer of Rotomist sprayers which feature straight through air delivery for maximum drive and volume, thorough coverage and faster rate of work.

Plastic Traffic Markings—Free Sample

368 These tough, plastic safety traffic markings remain visible even under heaviest traffic. They outlast paint 5 to 10 times, repel water, gasoline and oil, and are unaffected by extremes of temperature. Easy to apply, they are available in various sizes, shapes and colors. For your free Nefslab samples, write J. W. NEFF LABORATORIES, INC., TRAFFIC MARKINGS DIV., STOCKERTOWN 1, PA.

Housings for Municipal Recording Instruments

369 The Emcor modular enclosure system effectively packages groups of recording and control instruments, dials and indicators for easy visual and manual control. The San Jose, Calif. fire control center is Emcor-equipped. Other municipal applications are described in *Catalog* 106; write ELGIN METALFORMS CORP., 630 CONGDON, DEPT. 1223, ELGIN, ILL.

Do Your Street Lights Have Refractors?

370 Most street light fixtures have reflectors to cast the light downward. Many of them also have *refractors* whose prismatic design concentrates more light on the roadway and distributes it uniformly. For details, write CORNING GLASS WORKS, 63 CRYSTAL ST., CORNING, N. Y.

Drills Holes Through Reinforced Concrete

371 Now you can drill holes through reinforced concrete walls and floors quickly and easily with a portable, high-speed Truco Diamond Drilling Machine. For details on its many uses, write TRUCO MASONRY DRILLING DIV., WHEEL TRUEING CO., 73-3200 W. DAVISON AVE., DETROIT 38, MICH.

Low-Cost Copier

372 Rotolite reproduces printed, written, drawn or photographed originals on translucent material. Copies are uniformly sharp and clear and are quickly and economically obtained. For details on these 18, 27 and 42-inch wall-mounted machines, write ROTOLITE SALES CORP., STIRLING, N. J.

Wisconsin Engines for 1959

373 Fifty years of engineering development and specialization in the design and manufacture of engines stand behind every heavy-duty air-cooled Wisconsin engine which is supplied in 4-cycle cylinder, 2-cylinder and V-type 4-cylinder models in a complete power range from 3 to 56 hp. For literature on the 1959 engine line, write WISCONSIN MOTOR CORP., MILWAUKEE 46, WIS.

Truck Mounted Front-End Loader

374 A Lodal hydraulic truck loader makes a truck a complete working unit, saving as much as 50% in man equipment hours. Rugged and powerful, it fits most trucks in the 1½-4 ton capacity class, loads at 2 yards per minute, has 3000 pounds capacity and full hydraulic control. It is described in literature available from LODAL, INC., NORWAY, MICH.

Protects Concrete Pipe

375 Teckote fully protects concrete sewer lines against hydrogen sulfide concentrations, submergence in water, and other erosive conditions. It can be applied in a single operation, without heat, and may be handled within 1 hour after application without being damaged; curing takes 48 hours. For details, write DEPT. A, TECKOTE CORP., P. O. DRAWER 155 BIRMINGHAM, ALA.

Plastic Pipe

376 This lightweight plastic pipe is easy to handle, store and transport, simple to install and chemically inert. It will substantially reduce installation and maintenance costs in water systems, sewage drain lines, and underground sprinkler systems. Specifications and complete information may be obtained from SOUTHWESTERN PLASTIC PIPE CO., P. O. BOX 117, MINERAL WELLS, TEXAS.

Concrete and Asphalt Construction Equipment

377 Twenty-one different items of concrete and asphalt placement equipment for use by local government street maintenance crews are listed in illustrated, easy-to-read *Pocket Catalog* WCG-1P, available from WATSON-CMETCO, 1316—67th ST., EMERYVILLE 8, CALIF.

Pump Strainers

378 *Bulletin* 905 gives full information on pump strainers designed in many sizes, from almost any metal, and for nearly every municipal application. For your copy, write STRATAFLO PRODUCTS, INC., FORT WAYNE, IND.

Time Clocks

379 Time recorders, time stamps and watchman clocks can eliminate time leaks and increase the efficiency of municipal departments. Lathem time stamps, daters and numberers are widely used in cities of all sizes and in all departments. For information, write LATHEM TIME RECORDER CO., 82 THIRD ST., N. W., ATLANTA, GA.

Better Repairing of Concrete

380 Concrete adhesives based on Thiokol liquid polymers successfully meet the challenge of time, temperature and wear to provide a satisfactory solution to maintenance and repair of sidewalks, highways, floors, etc. They permit bonding of old-to-old and new-to-old concrete and traffic markers to both cement and bituminous concrete surfaces. For details, write DEPT. 53, THIOKOL CHEMICAL CORP., 780 N. CLINTON AVE., TRENTON 7, N. J.

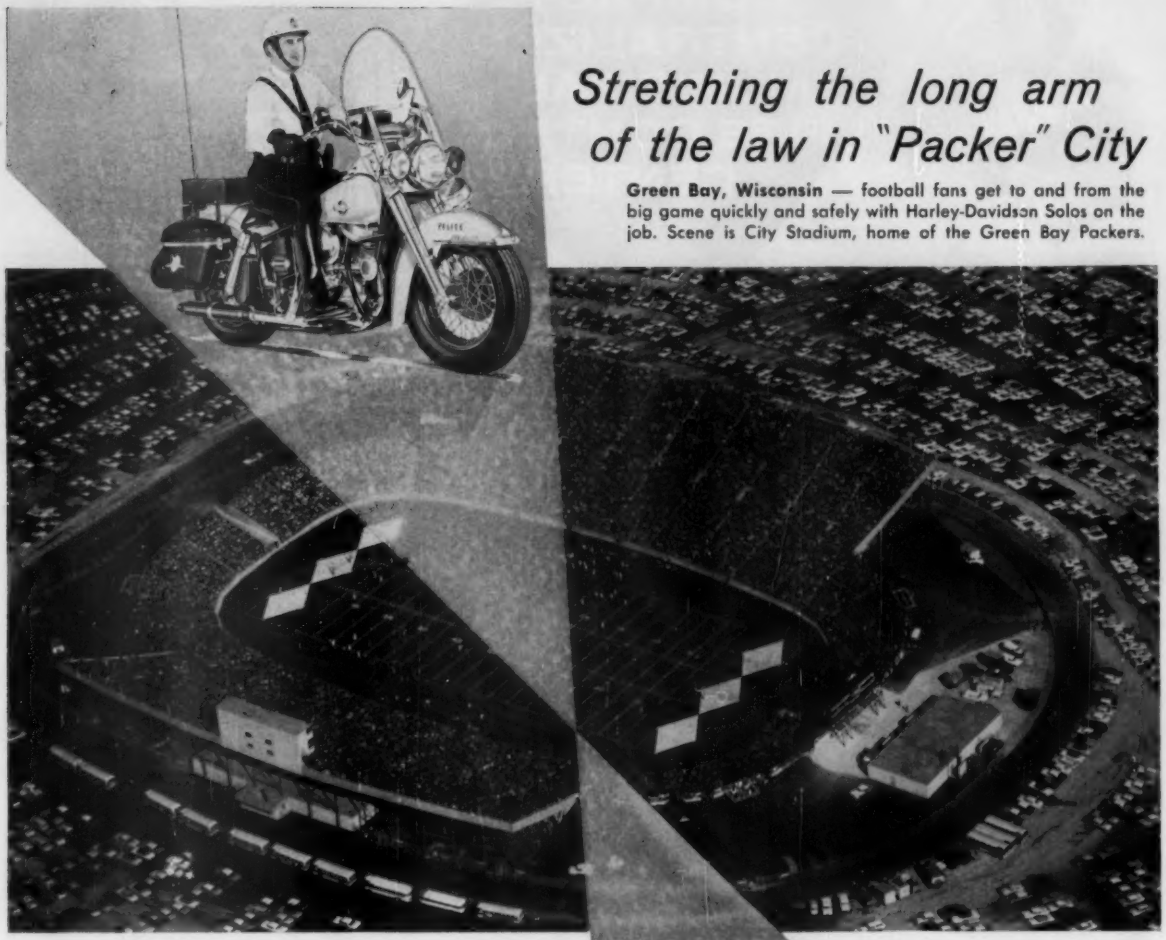
Rotary Mower Climbs Grades Up to 50%

381 This 26-inch rotary mower follows ground contours without scalping, trims lawns velvety smooth, cuts tough weeds. Powered by a 4½-hp Clinton or Lauson engine, with optional 12-volt electric starting, it moves forward at 2, 3, 4, 5, mph; 2 mph reverse. Interchangeable attachments include a 30" reel mower and bulldozer blade. For literature, write ARIENS CO., 235 CALUMET ST., BRILLION, Wis.

Snap-On Traffic Sign Faces

382 These fully reflectorized traffic sign faces "EZ-ON" right over present signs. Available in octagon or diamond shape, in red and white, yellow and black, they come in 24 and 30-inch sizes. Lower in both initial and maintenance costs than ordinary signs, they meet every traffic sign need. For literature, write GRACE SIGN & MFG. CO., 3601 S . 2ND ST., ST. LOUIS 18, MO.

(See page 38 for more Bulletins)



Stretching the long arm of the law in "Packer" City

Green Bay, Wisconsin — football fans get to and from the big game quickly and safely with Harley-Davidson Solos on the job. Scene is City Stadium, home of the Green Bay Packers.

Harley-Davidson Solos stand out in a crowd

. . . keep traffic flowing smoothly at special events

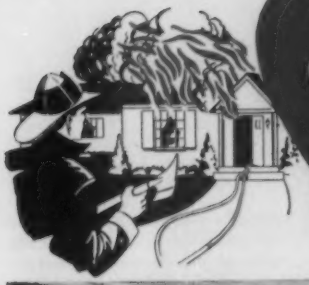
Wherever crowds gather, officers mounted on Harley-Davidson Solos are *standouts* at keeping the situation under control. The Solo's ability to move quickly through congested areas prevents traffic jams and keeps accidents down to a minimum.

Solos are *standouts* in other ways too. They are potent symbols of law and order . . . provide the quick, visual recognition so essential to crime and accident prevention. And there are no better good will ambassadors than solo-mounted officers . . . quickly *identifiable* and *accessible* to the citizen requiring information or assistance.

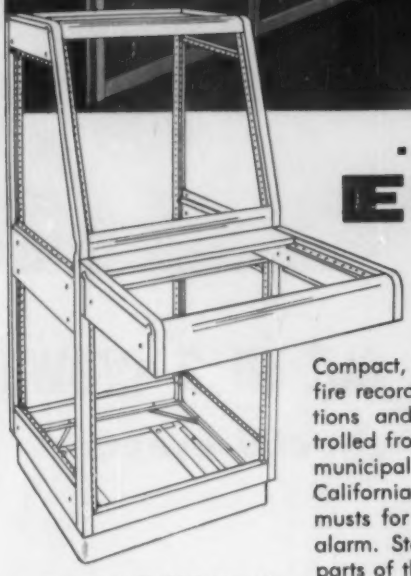
To learn more about how you can stretch *your* equipment and man-power dollars with Solos and Servi-Cars, see your dealer or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin for free, illustrated literature.

HARLEY-DAVIDSON

Police Motorcycles



COMPACT CENTRALIZED MUNICIPAL FIRE CONTROL CENTER



Standard EMCOR Sloped Front Console Frames with Work-writing Tops make up compact municipal fire control center.

...built with EMCOR STANDARD CABINETS

Compact, centralized control of automatic fire recording devices, communications stations and coded alarm signals are controlled from this modern, EMCOR equipped municipal fire control center, San Jose, California. Easy observation and control are musts for quick responsive action to a fire alarm. Standard cabinets and component parts of the EMCOR MODULAR ENCLOSURE SYSTEM answer these needs. Backed by environmental engineering know-how, these basic units are designed to package groups of instruments, indicators, dials and electronic scopes for easy visual and manual operation.

WRITE FOR YOUR COPY OF CATALOG 106

Originators of the Modular Enclosure System

QUALITY EMCOR PRODUCTS

ELGIN METALFORMERS CORP.

630 CONGDON, DEPT. 1223 • ELGIN, ILLINOIS

*Registered Trademark of Elgin Metalformers Corporation

VISIT US IN BOOTH 1225-1227-1229 AT THE I. R. E. SHOW NEW YORK COLISEUM—MARCH 23rd, 24th, 25th and 26th.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Rockwell Introduces New Parking Meter

383 Rugged construction and clean, simple design are very much a part of this new metered traffic control device, which Rockwell calls the M-I parking meter. Tamperproof, and easy to patrol, this manual meter accepts tokens as well as coins of four denominations. For details, write DUAL PARKING METER CO., SUBSIDIARY OF ROCKWELL MFG. CO., PITTSBURGH 8, PA.

Standby Electric Power

384 Hazards that result from interrupted power to vital municipal services can be easily avoided by a standby electric plant that will automatically start and feed current as soon as shutoff of normal power occurs. Literature on such plants may be obtained from D.W. ONAN & SONS, INC., 2533 UNIVERSITY AVE., S. E., MINNEAPOLIS 14, MINN.

Economical Brush Disposal

385 A fast, efficient method of brush disposal that chips both brush and costs is thoroughly explained in the booklet "Chips Dollars From Your Overhead". For your copy, write FITCHBURG ENGINEERING CORP., DEPT. AC-29, FITCHBURG, MASS.

Accurate Cost Records

386 A "Monthly Time and Cost Record Book", Form 33215, and a "Daily Time and Cost Record Booklet", Form 32818-G, will greatly assist owners in determining the cost of owning and operating Caterpillar equipment. Both booklets are supplied at no cost by the ADVERTISING DIVISION OF CATERPILLAR TRACTOR CO., PEORIA, ILL.

Tri-Fuel Engine Shrinks Fuel Costs

387 Rated 1425 hp at 450 rpm, this turbocharged JS-8 operates as supercharged spark-ignited gas engine, gas-diesel, or full diesel. It is equipped with a combustion air-cooling system to pack more oxygen into the engine so as to shrink fuel costs. For details, write COOPER BESSEMER, MOUNT VERNON, OHIO.

Makes Better City Maps— Free Sample

388 Stabilene Plat Film for city maps comes in rolls, sheets or special sizes, in white, buff or green. It yields lines of extremely sharp clarity, is 100% waterproof and can be washed with soap and water. Though thin as paper, it boosts plat life up to 10 times that of conventional materials. For free samples and facts, write KEUFFEL & ESSER CO., DEPT. AC-2, HOBOKEN, N. J.

Rubber Base Swimming Pool Paint

389 Natural chlorinated rubber and color-fast pigments give Hydroflex swimming pool paint vitally important elasticity and durability, positive adhesion to concrete and resistance to effects of alkali and chemicals. Able to stand up under sun, fresh and salt water and freezing temperatures, this finish also defies abuses of dampness. For details, write PHELAN-FAUST PAINT MFG. CO., 932 LOUGHBOROUGH AVE., ST. LOUIS 11, MO.

(See page 44 for more Bulletins)

record-breaking performance
at lowest possible cost!

BIG WHEEL
YAZOO

Here's the power mower that's built to last! Here's the construction, the simplicity of design that guarantees your Yazoo Big Wheelers will *stay* in top running order—regardless of rugged terrain . . . long, hard mowing jobs.

Those exclusive bicycle-type wheels do the job faster! Glide easily over rough ground . . . never bog down in soft turf. Assure easy handling—the maneuverability that makes Yazoo Master Mowers ideal for large cutting areas . . . maintaining fine terraces, estates. Precision engineered by pioneers in the manufacture of rotary power mowers, Yazoo Master Mowers will give years of efficient, trouble-free performance.

See for yourself why Yazoo Big Wheels do the big jobs best . . . see the Yazoo complete line at dealer nearest you!

YAZOO MASTER MOWER
YAZOO MANUFACTURING COMPANY

YAZOO
MANUFACTURING CO.
3607 LIVINGSTON ROAD
JACKSON, MISSISSIPPI

ORIGINATORS AND FOUNDERS OF BIG WHEEL MOWERS

YAZOO MANUFACTURING CO.
Box 4527, 3607 Livingston Road
Jackson, Mississippi
(Model shown above, 9B-33-24 FSP)

Please send me complete details and catalog of your new 1959 line of BIG WHEEL Yazoo Master Mowers.

NAME_____

TITLE_____

ADDRESS_____

CITY_____ STATE_____

Only **PAYLOADER®** gives

COMPACTOR

GALION VIBRATORY COMPACTOR develops specified densities in all granular soils. Four 30-in. shoes have individual electric motor power. Each delivers 3,600 to 4,200 three-ton blows per minute. Compaction width is 10-ft. Individual shoes can be removed for manual operation.

SIDE BOOM

SUPERIOR-HOUGH SIDE BOOM does not interfere with bucket use. Has complete hydraulic control and power — lifts 10,000-lbs. at 4-ft. overhang, more than a ton at 14-ft. overhang. Boom telescopes from 10 to 16-ft. maximum. Cable drum has free-spooling safety release.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

FOUR-IN-ONE

DROTT "4-IN-1" BUCKET — Patented, multi-purpose all-hydraulic controlled bucket enables a "PAY-LOADER" to perform shovel, clamshell, scraper and bulldozer work — jobs that usually require several special machines — without losing a minute's time to make equipment changes.

LEAF LOADER

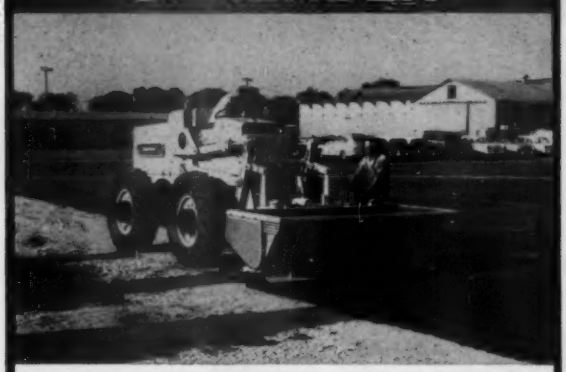
RAM LOADER is equipped with individual hydraulic motors to operate reel and each of three conveyor belts. City reports it picks up 90% of bulk and saves as much as 30% of leaf loading costs. Also has valuable secondary use in fringe snow areas as a loader.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

you this **VERSATILITY**

SPREADER



RAM BLACK TOP SPREADER handles hot or cold mix for patching or paving. Unit has separate power and all-hydraulic controls — rides on own pneumatic tires. Lays up to 8-ft. widths, adjustable from 0 to 48-in. Thickness also adjusts 0 to 6-in. Hopper capacity — 2 cu. yd.

BACK HOE

WAIN-ROY BACK HOE — This finest of back hoe attachments, with all-hydraulic controls, has a 12-ft. digging depth and a working radius of 190° for both digging and dumping at right angles. Cuts vertical sides, square corners, level grades — digs bell holes, trenches, pits.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

SNOW PLOW

RAM ROTARY PLOW — Separate power unit drives blower to load trucks or cast to either side. Double or triple augers available. FORK LIFT easily interchanges with bucket. Adjustable spacing fits various sizes of loose or pallet loads. Powerful hydraulic controls handle heavy loads.

FORK LIFT

Send complete data on PAYLOADER with:

- ☐ Compactor
- ☐ Side Boom
- ☐ "4-In-1" Bucket
- ☐ Leaf Loader
- ☐ Spreader ☐ Snow Plow
- ☐ Back Hoe ☐ Fork Lift

2-8-1

Name
Title
Company
Street
City State
AC

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

BASIC...

WHEN WATER MEANT DRUDGERY! The water our ancestors used was as difficult to come by as it was doubtful in quality.

TODAY'S HOUSEKEEPER, served by a modern American water system, finds the water she needs—clean pure water—at her fingertips.

U.S. cast iron **PIPE**

FOR WATER, SEWERAGE AND

U. S. PIPE AND FOUNDRY COMPANY

but better than ever today!

Modern technology plus mine-to-line control insures top quality of U.S. Cast Iron Pipe

Our water today is made so universally pure and wholesome no American ever doubts its quality.

This is a tribute to the forward-looking water officials who plan and administer the nation's water systems... and their suppliers.

For example, U. S. Pipe controls every step from mining to shipping ...uses every possible quality check to make sure its product measures up to the heavy responsibility placed on it.

This close and painstaking supervision insures the unvarying high quality and dependability of U. S. Pipe—both indispensable to a product that plays so big a part in protecting the nation's health.

GOOD PIPE BEGINS HERE... At one of U. S. Pipe's mines near Birmingham, where high grade coking coal, essential to quality, is mined.

PIPE TAKES SHAPE... Molten iron in this rapidly rotating mold assumes its form as pipe—one of many manufacturing steps.

TESTING STRENGTH... Pipe specimens are periodically subjected to more brutal treatment in laboratory than they will receive in normal service.

INDUSTRIAL SERVICE CAST IRON

Birmingham 2, Ala. *A wholly integrated producer from mines and blast furnaces to finished pipe.*

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Plywood Traffic Sign Blanks—Free Sample

390 These high-density overlaid plywood sign blanks are impervious to moisture, and are said to be more durable than steel or aluminum. They need no paint protection and come in standard sizes and shapes. For cost data, use and samples, write ST. PAUL & TACOMA LUMBER CO., DEPT. AC, TACOMA 1, WASH.

100% Kill of Mosquito Larvae

391 A safe and inexpensive way to kill mosquito larvae in breeding places such as swamps, catch basins and ditches is to use Tossits. These gelatine capsules rupture when thrown into infested water, quickly spread a film of larvacide over the surface of the water to give 100% kill. For details, write WYCO INTERNATIONAL, 4811 CARNEGIE AVE., CLEVELAND 3, OHIO.

Self-Closing Waste Receptacle

392 Full description and specifications are now available on Bennett's new self-closing wear-resistant waste receptacle—the Model 144, designed for both indoor and outdoor locations, easy use, simplified emptying. Write BENNETT MFG. CO., INC., ALDEN, N. Y. Request *Bulletin* 200.

Simplifies Complex Traffic Problems

393 The "EC" vehicle supervised system combines flexibility with vehicle detection and programming to provide a completely organized and automatic selection of splits, offsets and cycle lengths to meet each traffic need as it arises. For details, write EAGLE SIGNAL CORP., MUNICIPAL DIV., Dept. AC-259, MOLINE, ILL.

Emergency Electric Plants

394 With a Katolight standing by, uninterrupted electric power to operate vital municipal equipment and services is assured should normal electric power fail. For information on portable, standby or continuous electric plants, write KATOLIGHT CORP., BOX 891-25 MANKATO, MINN.

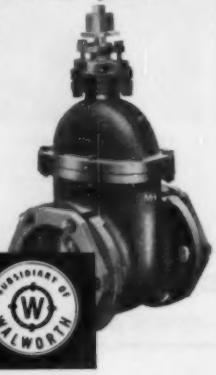
Catherine had NO BATHTUB

Catherine de Medici, luxury loving queen of France, moved her court 90 times in 6 years so that the filthy rooms could be cleaned. The royal palace contained no water pipe nor bathing or washing facilities. Today in the United States, over 80% of homes have bathtub or shower, over 86% have inside toilet.

The American people are using water at greater consumption rate than any other people in all history. Over 250 billion gallons are withdrawn daily from ground, lakes and streams for all uses—an increase of 34% in five years. With population increasing faster than any other Nation on earth, it is estimated that by 1975 there will be 227 million Americans who will require 50% more water than they use today!

The men who build, manage and maintain America's water distribution systems are wide awake. They are aware of future problems and are planning ways and means to meet them.

This Series is an attempt to put into words some appreciation of the water works men of the United States.



M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF WALWORTH

5-Position Backhoe Speeds Work, Cuts Costs

395 The new John Deere 51 backhoe tackles trenching jobs with responsive easily controlled digging power, 20-foot reach, 13-foot digging depth, 11-foot dumping height. Changing the boom to any of five positions on the mounting pad requires but 15 minutes. For complete information, write JOHN DEERE INDUSTRIAL DIVISION, DEPT. D-49-J, MOLINE, ILL.

Switchgear

396 Cities owning electric generating stations can obtain 40 pages describing indoor and outdoor metal-clad switchgear for operating generators, transformers and electric feeders by writing for *Bulletin* GEA-5664 E., available from GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

Transistor Radio for Fire and Police

397 A new 2-way mobile radio for fire and police, half the size and using one-third the power of tube units, utilizes more than 20 transistors. The most important features of MOTRAC (for Motorola Transistorized Advanced Communications) are its increased reliability and low power drain characteristics. For data, write MOTOROLA INC., 4545 W. AUGUSTA BLVD., CHICAGO 51, ILL.

Stop Foam in Sewage Aerators

398 DF-12, a liquid chemical that controls foam in sewage aerator tanks, is both economical and simple to use. Its efficiency is not affected by altitude or temperature, and it may be used with complete safety anywhere in the sewage treatment plant. Complete information is available from NATIONAL DISINFECTANT CO., 2417 COMMERCE, DALLAS, TEXAS.

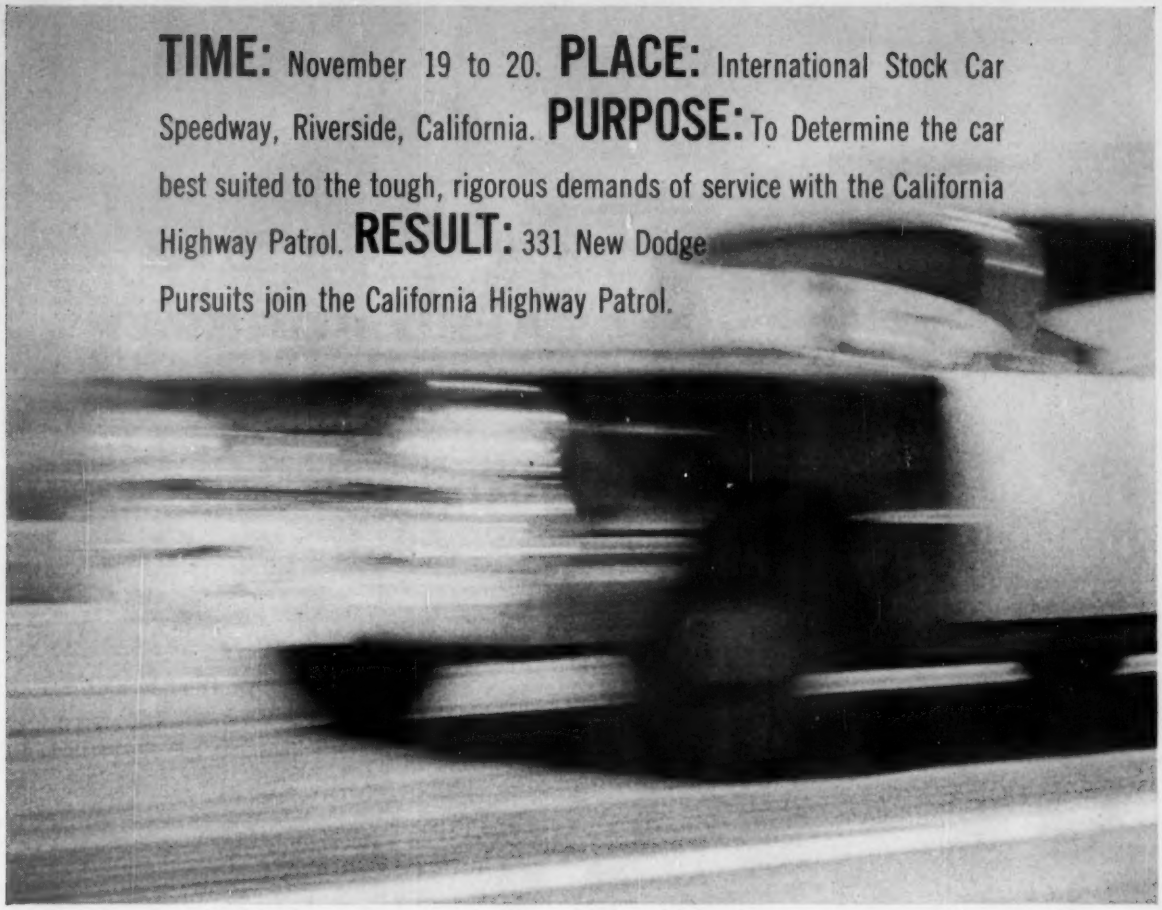
Water Meters Sealed Against Wear and Corrosion

399 The registering mechanism and reduction gearing of Rockwell Sealed Register water meters are encased in a steel and glass housing. The register itself operates above the flowing stream. These factors seal the meter against dirt, water and fogged register dials. For other details, write ROCKWELL MFG. CO., PITTSBURGH 8, PA.

Low-Cost Truck Power

400 There's 20% more fuel economy in the 1959 Chevrolet Thriftmaster 6. The new camshaft design, machined to provide a lower lift and reduced valve overlap, contributes 10%; an economy *option* that consists of a smaller venturi carburetor and new ratio axle adds another 10%. For details, write CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICH.

(See page 47 for more Bulletins)


TIME: November 19 to 20. PLACE: International Stock Car Speedway, Riverside, California. PURPOSE: To Determine the car best suited to the tough, rigorous demands of service with the California Highway Patrol. RESULT: 331 New Dodge Pursuits join the California Highway Patrol.

DODGE Performance Proves Itself!

The men responsible for specifying the patrol cars for the California Highway Patrol don't guess about performance, they test for themselves. Here are the results of the competitive tests they ran this year in determining which car to select for their official use.

ACCELERATION TESTS

Test No. 1—Quarter Mile Standing Start
1st—Dodge averaging 86.89 mph.

Test No. 2—Quarter Mile Flying Start at 50 mph.
1st—Dodge averaging 91.24 mph.

Test No. 3—One Mile Standing Start
1st—Dodge averaging 117 mph.

Test No. 4—One Mile Flying Start at 50 mph.
1st—Dodge averaging 122 mph.

BRAKING TESTS

Shortest stopping distance in a panic stop from 60 mph.
1st—Dodge

Next time you specify cars for your force, be sure you get what you need. Test, compare the capable Dodge Pursuit; the car that's specially built from the ground up to meet the tough demands of police operation. See your local Dodge dealer or write: Dodge Division, Chrysler Corporation, Box 1259, Detroit, Michigan.

'59 DODGE PURSUITS Designed, Built and Powered for Police Work

SEALED FOREVER

AGAINST DIRT, WATER AND FOGGED REGISTER DIALS

The Rockwell Sealed Register meter *alone* has all the registering mechanism and all the reduction gearing encased in a steel and glass housing. Nothing can pass this hermetically sealed barrier to cause wear or corrosion. And, since the register operates high and dry above the flowing stream, condensation under the glass just can't occur.

In this revolutionary meter, a simple, powerful magnetic drive transmits motion from the measuring chamber to the sealed register without mechanical linkage. There's no stuffing box to leak or bind—and only two moving parts operating in water. With this construction service troubles are a thing of the past, while maintenance costs go way down. Get full facts now. Write Rockwell Manufacturing Co., Pittsburgh 8, Pa.

SEALED REGISTER METERS

another fine product by

ROCKWELL

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Marks Nighttime Traffic Hazards

401 A new white "Codit" reflective liquid (No. 7216), which can be brushed, rolled or sprayed on rough or porous surfaces, is white by day, blending inconspicuously with concrete and other light-colored backgrounds. At night it vividly reflects the lights of approaching cars to make surfaces visible to drivers. It is designed for economical and convenient marking of traffic hazards where the application of reflective sheeting may be impractical. For details, write MINNESOTA MINING & MFG. CO., DEPT. K8-377, 900 BUSH AVE., ST. PAUL 6, MINN.

Chain Saws, Attachments, Accessories

402 The 1959 line of Remington gasoline, electric and air-powered saws, in straight guide and pinchless styles, direct drive or gear transmission models for any kind of cutting are introduced in a new bulletin available from REMINGTON ARMS CO., BRIDGEPORT 2, CONN.

Desands Well Water

403 *Bulletin* No. 2507 discusses a simple, low-cost, practical method of desanding well water. Built around the DorrClone unit, a cylindrical conical shell, it can be designed to suit practically any well water system. For your copy, write DORR-OLIVER INC., STAMFORD, CONN.

Is Sea Water Distillation Practical?

404 To this question, which is most often posed by communities with difficult water supplies, THE MAXIM SILENCER CO. answers, "Yes!" Its distillation units are proving sea water conversion to be economically feasible for the shore-located community. For details, write the company at 103 HOMESTEAD AVE., HARTFORD, CONN.

Improved Butterfly Valve

405 One of the advanced features incorporated in the improved Leopold butterfly valve is the "uni-wedge" method of seat retention, which allows the seat retaining pressure to be externally adjusted with the valve in place in the line. For other design improvements, write the BUTTERFLY VALVE DIV., F. B. LEOPOLD CO., INC., 227 S. DIVISION ST., ZELIENOPLE, PA.

Backhoe Attaches-Detaches in 30 Seconds

406 The ease with which the versatile snap-on-and-off Hopto backhoe can be attached to either crawler or rubber-tire tractor is illustrated in a comprehensive booklet issued by the BADGER DIVISION, THE WARNER & SWASEY CO., WINONA, MINN. Also shown, is the Hopto at work on a variety of jobs.

Dry Feeder Machines for Water and Sewage Treatment plants

407 A new catalog on dry feeder machines with vibrated hoppers is now available from SYNTRON CO., 430 LEXINGTON AVE., HOMER CITY, PA. It give complete descriptions, data and specifications of five standard "Vibra-Flow" units, which provide accurate feeding of dry chemical reagents for water filtration and sewage disposal systems.

Small Truck Crane

408 This hydraulically-operated, truck-mounted crane will lift 650 pounds with a 7-foot boom, or 450 pounds with a 10-foot boom. It can be operated with truck P.T.O. or by an auxiliary engine; convenient controls speed operation. For literature fully describing the Handlift, write TEALE AND COMPANY, P. O. BOX 308, OMAHA, NEBR.

Versatile Payloader

409 Compactor, side boom, four-in-one bucket, backhoe, fork lift, spreader, snow plow, leaf loader—equip the Hough Payloader with the proper attachment and it becomes all of these units, bringing unusual efficiency and versatility to municipal operations. For printed matter, write THE FRANK G. HOUGH CO., LIBERTYVILLE, ILL.

Protective Coatings

410 General data on corrosion-resisting coatings for concrete, copper, steel, aluminum and wood are neatly classified in *Bulletin* No. 100, available from CARBOLINE CO., 32 HANLEY IND. CT., ST. LOUIS, MO.

Peps Up Your Water Filter

411 The Palmer surface wash agitator requires about 40% less wash water, eliminates mud balls, prevents cracking and shrinking of beds, enables you to increase filter runs up to 50%. If you desire better results from filtering media itself, write PALMER FILTER EQUIPMENT CO., P. O. BOX 1655, ERIE, PA.

(See page 48 for more Bulletins)

products for public good
SINCE 1898
MARIETTA, OHIO
"Automatic Voting Machines brought smiles and endless words of praise, particularly from the precinct and election board workers accustomed to poring over sheets of figures and ballots far into the night. Once the returns started coming into election headquarters they continued in a wave that seldom paused. At 9:30 P.M. returns from all precincts were in the hands of the board of elections office. The returns set a new record for speed in arriving at election headquarters."—Marietta, Ohio, Times
Available for service clubs, or other interested gatherings, by 60 day reservation—a new 18 minute 16 mm color film illustrating potential benefits of Automatic.
AUTOMATIC
VOTING MACHINE CORPORATION
Jamestown, N.Y.

New! BADGER *Read-o-Matic REGISTER**

adds speed-reading to water metering

Here is the industry's first practical outdoor register — the Badger Read-o-Matic. Now meter reading routes can be completed in half the time — with no more wasted calls. Plus other important benefits such as:

• ***No more "lockouts"*** • ***No more in-house accidents*** • ***No more access problems*** • ***No more inconvenienced customers***

The new Badger Read-o-Matic means a modern meter reading system that your water department can have now — and opens a whole new realm of possibilities for the future. You'll want to read about them in our free new Badger Read-o-Matic folder.

*Pat. applied for in U. S. A. and foreign countries

Badger Meter Mfg. Co. • 4545 W. Brown Deer Rd. • Milwaukee 18, Wis.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Motor Graders and Rollers

412 *Booklet HWG-561* outlines the features of nine motor grader models (75 to 195 hp), both tandem and 3-wheel rollers, and the versatile M-52 Maintainer that performs nine maintenance jobs. For your copy, write HUBER-WARCO CO., MARION, OHIO.

General Purpose Solenoid Valve

413 "Shorty" is a cast bronze, two-way solenoid valve 4¾" high, 3" wide, 3 13/16" in height from top to line. Designed for a variety of uses—air and gases, water, oil, steam—it is pilot-operated and can be kept open with a pressure differential as low as 5 psi. For full details, request *Bulletin* KK-160 from ATKOMATIC VALVE CO., INC., 543 W. ABBOTT ST., INDIANAPOLIS 25, IND.

Sewer Pipe Fends Off Corrosion and Erosion

414 Corrosion and erosion are both enemies of storm and sanitary sewers. They challenge pipeline durability, up maintenance costs, subtract from long-term savings. Armco Smooth-Flo Sewer Pipe is designed to resist these destructive agencies. For a folder describing it, write ARMCO DRAINAGE & METAL PRODUCTS, INC., 4369 CURTIS ST., MIDDLETOWN, OHIO.

Clarifiers and Oxidators to Purify Sewage

415 *Bulletin* SM-1005, issued by PROCESS ENGINEERS, INC., DIV. OF THE EIMCO CORP., 420 PENINSULAR AVE., SAN MATEO, CALIF., gives comprehensive information on clarifier and Oxidator mechanisms for water, sewage and industrial waste treatment. Basic types that cover a full range of tank sizes and load requirements, and special units for unusual conditions are described.

Sturdy Waste Receptacles

416 Sanitary waste receptacles able to stand up under the abuses of weather and long use are discussed in a new catalog available from UNITED METAL CABINET CORP., 8 EAST 36TH ST., NEW YORK, N. Y.

Fresh Approach to Traffic and Parking Problems

417 Flex-O-Guides channel and guide traffic more safely and practically. They can be used in every phase of traffic delineation, for parking area control and as aisle markers. For literature on these posts of Flex-resistant extruded rubber tubing, write FLEXIBLE SAFETY ZONING CO., 1225 S. AUSTIN BLVD., CICERO, ILL.

Speeds Construction of Safety Railings

418 By eliminating threading and welding and minimizing pipe cutting, high-strength aluminum Nu-Rail Slip-On Structural Fittings save up to 30% in costs. Five basic fittings make up combinations for any kind of safety or guard rail for use outdoors or indoors. For details, request *Bulletin* 17AM from THE HOLLAENDER MFG. CO., 3841 SPRING GROVE AVE., CINCINNATI 23, OHIO.

Protects New Paving Against Sudden Rain

419 Results of rigorous tests on street construction jobs throughout the country dramatically point up Cationic Bitumulus resistance to early rains, its ability to coat all aggregates, its rapid set. For the facts, and to extend your paving season, write AMERICAN BITUMULS & ASPHALT CO., 320 MARKET ST., SAN FRANCISCO 20, CALIF.

Well Strainers

420 Precision-made Cook Well strainers permit free, fast-flowing water from wells. They prevent clogging and contribute to good natural development of water-bearing formation. They are available in a choice of metals and in as many different slot sizes as required. For details, write COOK WELL STRAINER CO., 6330 GLENWAY AVE., CINCINNATI 11, OHIO.

Leveling Instruments

421 Surveyors, engineers and construction project technicians will find that each instrument described in "Leveling Instruments" has a specific range of application and usefulness, that each is precision fashioned, accurate in performance and sturdy in construction. Write WILD HEERBRUGG INSTRUMENTS INC., MAIN & COVERT STS., PORT WASHINGTON, N. Y.

Water Impact Unclogs Sewer Drains

422 The Plumbers Flushing Gun instantly dislodges stubborn obstructions from ½ to 6-inch diameter sewer drains by releasing air pressure on a solid shaft of water. Removal of pipe, grease trap or cross piece is not necessary. Application and operation are explained in a free booklet available from MILLER SEWER ROD CO., DEPT. A-2, 4642 N. CENTRAL AVE., CHICAGO 40, ILL.

Rubber Expansion Joints

423 When used in pipelines to compensate for misalignment, vibration, expansion and contraction, and noise transmission, U. S. Rubber expansion joints prove economical and flexible. They have no moving parts, and can be installed on both new and old piping equipment. For details, write MECHANICAL GOODS DIV., UNITED STATES RUBBER, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Long-Lasting Traffic Paint

424 Once down, Perma-Line stays safely on the job, 8 to 10 times longer than other traffic paints. This full-time efficiency and protection means increased safety, decreased costs. For details, write VEON CHEMICAL CORP., 22-09 BRIDGE PLAZA NORTH, LONG ISLAND CITY 1, N. Y.

Heavy-Duty Engines

425 Duafuel, diesel and spark-ignition gas engines designed to deliver economical, reliable, around-the-clock power to meet the ever-increasing electrical demands of growing municipalities are discussed in literature available from NORDBERG MFG. CO., MILWAUKEE, WIS., builders of a large line of heavy-duty engines.

Simplifies Municipal Accounting

426 When you build your municipal record-keeping around a National Cash Register System you save time, reduce payroll costs and increase efficiency. For details on the National System or its components—accounting and adding machines, cash registers, etc. — write THE NATIONAL CASH REGISTER CO., DAYTON 9, OHIO.

Rotary Power Mowers

427 Rugged terrain or long, hard mowing jobs don't intimidate these rotaries. Their bicycle-type wheels glide easily over rough ground, won't bog down in soft turf. The complete 1959 line of Big Wheel Master Mowers is described in a catalog, available from YAZOO MFG. CO., BOX 4527, 3607 LIVINGSTON RD., JACKSON, MISS.

Built to Meet Fire-Protection Needs

428 When you specify Mack, you specify fire apparatus as you want it — custom-built to meet your requirements of hazards, terrain, climate. Squad and hose wagons, aerials, combination ladder trucks, pumpers all turn in a stalwart performance. For literature on these units, write MACK FIRE APPARATUS, SIDNEY, OHIO.

All Types of Rollers

429 There's a tandem or 3-wheel Austin-Western roller to meet the needs of every municipality. Gasoline or diesel powered, they are available with standard 2-speed transmission with torque converter or 4-speed transmission. Torque converter with 4-speed transmission is optional. For details, write AUSTIN-WESTERN CONSTRUCTION EQUIPMENT DIV., BALDWIN - LIMA - HAMILTON, AURORA, ILL.

Equipment for Brighter, Safer Outdoor Lighting

430 In addition to providing necessary equipment, accessories and apparatus to meet municipal lighting needs, L-M offers lighting application engineering as a service. For information on this service and products available, write LINE MATERIAL INDUSTRIES, LIGHTING DIVISION, MILWAUKEE 1, WIS.

Automatic Pump Control Valve

431 This valve dampens starting and stopping surges of both booster and deep well pumps by slowly placing pumps on the line and slowly taking them off. It will also act as a check valve to prevent reverse flow in installations where a swing check valve is not used. For details, request *Bulletin* 106 from ROSS VALVE MFG. C., TROY, N. Y.

Sanitary Washfountains and Showers

432 *Catalog* 5601 discusses foot-controlled washfountains and multi-showerbath facilities for playgrounds, swimming pools and other municipal recreation areas. For your copy, write BRADLEY WASHFOUNTAIN CO., 2333 W. MICHIGAN ST., MILWAUKEE 1, WIS.

Aerial Surveys

433 Aerial surveys and contour maps can help every city department plan more intelligently and more accurately for future growth and facilities that will be needed to meet that growth. FAIRCHILD AERIAL SURVEYS, INC., 224 E. ELEVENTH ST., LOS ANGELES, CALIF., offers complete service to meet municipal mapping needs.

Police Pursuit Cars

434 The real test of a police car is in its performance — roadability, acceleration, speed emergency braking. Dodge Pursuits are designed, built and powered for police work; they have the ability to meet and stand up under the grueling demands of police service. For details, write DODGE DIVISION, CHRYSLER CORP., BOX 1259, DETROIT, MICH.

(See page 52 for more Bulletins)

Here's the big news behind the industry's first practical outdoor register

The Badger Read-o-Matic is powered entirely by the meter to which it is attached . . . works on an exclusive "pulse" principle. As water flows through the meter, the generator sends a pulse by wire to the Badger Read-o-Matic register outside for accurate recording.

Like our Badger meters, the Badger Read-o-Matic is precision-engineered — thoroughly tested by our trained water meter experts in the laboratory and in the field. Badger Meter products are the result of over 50 years of *specialized* water meter experience — products that excel around the world in accuracy, durability, dependability and low maintenance cost.

Send for free, colorful brochure that tells you all about the revolutionary Badger Read-o-Matic. For an actual demonstration, see your Badger representative or write us direct.

Badger Water Meters

Badger Meter Mfg. Co. • 4545 W. Brown Deer Rd. • Milwaukee 18, Wis.

In Columbia, Tennessee

POLICE, FIRE, WATER AND POWER DEPARTMENTS

all use General Electric two-way radio

City departments in Columbia, Tennessee, cover more ground with fewer men and vehicles, thanks to the efficient control made possible by General Electric two-way radio. This means a lighter load for Columbia's taxpayers.

To increase usefulness still further, Columbia's two-way radio systems were planned to meet Civil Defense requirements, and include cross-monitoring with the State Highway Patrol and nearby communities.

Transistor-powered reliability

New G-E transistor powered mobile radios are thermostatically protected for extra reliability. And General Electric furnishes controlled magnetic microphones as standard equipment in both mobile and base stations, to give you outstanding voice fidelity.

G.E. uses pre-tested communication-type tubes, selected to withstand shock, vibration and repeated on-off cycling. Plug-in chassis design lets you change an inoperative transmitter, receiver or power supply in minutes, without complicated solder connections.

Find out how General Electric two-way radio can lower the cost of your community services. Call your G-E communications consultant, listed under "Radio Communication Equipment" in the Yellow Pages, or write General Electric Company, Communication Products Dept., **1259** Lynchburg, Va.

GENERAL ELECTRIC

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 261, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

DO YOU HAVE A WATER SUPPLY PROBLEM?

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows, starting on page 36

362	374	386	398	410	422	434	446	458	470	482
363	375	387	399	411	423	435	447	459	471	483
364	376	388	400	412	424	436	448	460	472	484
365	377	389	401	413	425	437	449	461	473	485
366	378	390	402	414	426	438	450	462	474	486
367	379	391	403	415	427	439	451	463	475	487
368	380	392	404	416	428	440	452	464	476	488
369	381	393	405	417	429	441	453	465	477	489
370	382	394	406	418	430	442	454	466	478	490
371	383	395	407	419	431	443	455	467	479	491
372	384	396	408	420	432	444	456	468	480	492
373	385	397	409	421	433	445	457	469	481	

I would also like to receive manufacturer's booklets on .....

.....

.....

.....

Name: (Please Print) .....

Title: .....

Address .....

..... 2-59

A listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 191 as circled below:

857	862	867	872	877	882	887	892
858	863	868	873	878	883	888	893
859	864	869	874	879	884	889	894
860	865	870	875	880	885	890	895
861	866	871	876	881	886	891	896

I would also like to receive manufacturers' booklets on .....

.....

.....

.....

Name: (Please Print) .....

Title: .....

Address: .....

..... 2-59

Affiliation of Your Business Connection is Important

IT'S NO ILLUSION

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 381, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

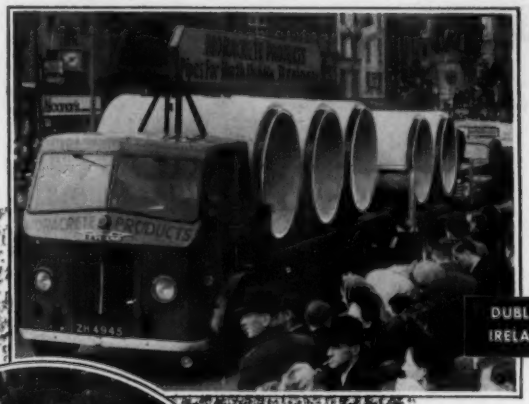
Wherever sewer and drain lines are being built for long, trouble-free service

YOU'LL FIND

TYLOX

flexible RUBBER GASKETS

on the job . . .



DUBLIN, IRELAND

MIAMI, FLORIDA

LANSING, MICHIGAN

BOULDER, COLORADO

SASOLBURG, SOUTH AFRICA

In America, and all over the world, engineers and contractors call on TYLOX flexible RUBBER GASKETS to prevent infiltration at pipe joints . . . to eliminate costly trench-work delays and speed pipe-laying . . . to defeat corrosion and insure water-tight, maintenance-free joints for the "life of the pipe itself". That's why TYLOX Gaskets were specified for the big pipe projects shown here . . . why they are specified for most waste disposal projects . . . everywhere!

WRITE TODAY for the facts on TYLOX, the *only* flexible pipe-joint meeting requirements of engineers, contractors and taxpayers alike. Read the facts, and take advantage of this champion of pipe joints by specifying "TYLOX RUBBER JOINTS" on your next job.

HAMILTON KENT MANUFACTURING COMPANY

KENT, OHIO

427 West Grant St. Orchard 3-9555

THE ONLY PERMANENTLY TIGHT LINES ARE LAID WITH RUBBER JOINTS

5018

Read how FITCHBURG CHIPPER SOLVES BRUSH DISPOSAL County of Bergen, N. J.

OFFICE OF SUPERVISOR OF ROADS
COUNTY OF BERGEN

J. Ernest Thier, Supervisor
Diamond 3-1350

70 Zabriskie Street
Hackensack, N. J.

May 26, 1955

Mr. W. O. Forman, President,
Fitchburg Engineering Corp.,
Fitchburg, Massachusetts.

Dear Mr. Forman:

I thought I would take five minutes out to inform you about the efficient work your Fitchburg Chipper is doing in Bergen County.

As you probably well know, this Department maintains 450 miles of County road, much of it in the rural area, and formerly, when cutting brush, we had to use a large dump truck and three men to load it, and we were then faced with the problem of disposing of this brush, which was a job in itself.

Since purchasing the Fitchburg Chipper we only need one or two men and a pick-up truck to haul it, and we are not faced with the problem of disposing of this roadside brush, as the wood is now chipped along the roadside to form a soil-improving mulch.

Yours very truly,

J. E. Thier

Supervisor of Roads.

Free Booklet

Perhaps the savings in man hours and equipment mentioned by Mr. Thier in his letter may apply to your city, town or department.

For further information on how a Fitchburg Chipper can benefit your operation, send for FREE BOOKLET: "Chip Dollars from Your Overhead."

Address Dept. AC-29

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Protective Fencing

435 Full protection from trespassers, vandals and prowlers is given municipal buildings by sturdy Realock Fence. Posts are set in concrete, and wire fabric is maintenance-free steel or aluminum. For a variety of types and sizes available, write THE COLORADO FUEL & IRON CORP., WICKWIRE SPENCER STEEL DIV., BUFFALO, N. Y.

Mows More Acres Per Hour

436 The Worthington Model "F" tractor equipped with 3, 4, or 5 gangs is ideal for large area grass maintenance. Wing-lift control permits it to cut right up to obstructions, lift a wing to clear, then lower it to continue mowing. For complete information, write WORTHINGTON MOWER CO., STROUDSBURG, PA.

Portable Electric Plants and Generators

437 Rugged Pioneer generators deliver power on the spot, whenever and wherever needed. Portable, belt-driven, directed mounted, models range from 500 to 12,000 watts. Complete specifications are given in literature available from PIONEER GEN-E-MOTOR CORP., 5849 W. DICKENS AVE., CHICAGO 39, ILL.

Traffic Cones

438 Whether you select all-rubber Safe-T-Cones or new, plastic Poly-Cones to guide your traffic, you will get tough, durable traffic aids that are highly visible both day and night. For details, write RADIATOR SPECIALTY CO., CHARLOTTE, N. C.

Efficient Lighting for Moderately Traveled Streets

439 The Star-Lux luminaire, which uses up to 10,000 lumen incandescent lamps or 250 to 400-watt mercury lamps, is designed to provide moderately-traveled streets with uniform, moderate intensity lighting that is both efficient and economical. It is but one in a complete line of luminaires offered by REVERE ELECTRIC MFG. CO., 7420 LEHIGH AVE., CHICAGO 48, ILL. and described in the company's new *Street Lighting Catalog*.

Guides to Winter Street Maintenance

440 "Melt Ice Faster With Mixtures," "Chemical Mixtures in Winter Maintenance," and "3-Way Highway Ice Control with Solvay Calcium Chloride" are booklets that will help your community achieve more effective and more economical wintertime street maintenance. They are available free from SOLVAY PROCESS DIVISION, ALLIED CHEMICAL, 61 BROADWAY, NEW YORK 6, N. Y.

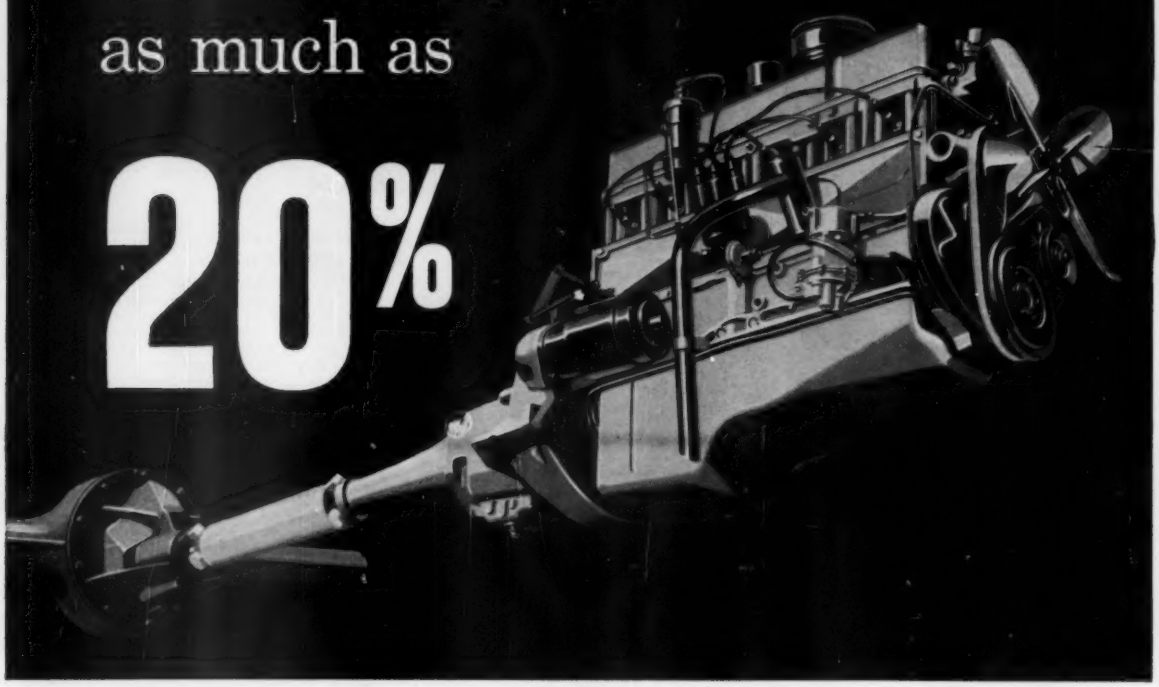
Air-Broom Replaces Hand Sweeping

441 The Lo-Blo "air-broom" can be used by street repair crews to quickly clean surfaces to obtain a better bond or for ridding parking areas, walks, golf courses, etc. of litter. The 7-hp model has a maximum air blast velocity of 150 mph, and makes quick work of any clean-up chore. For details on this and other models, write ATWATER-STRONG CO., ATWATER, OHIO.

(See page 54 for more Bulletins)

With new features and options, '59 Chevrolet truck 6 boosts fuel economy by as much as

20%



A new camshaft design and a new maximum-economy option* bring you this remarkable increase in gas savings with Chevy's Thriftmaster 6.†

This newly improved engine for '59 offers fuel economy that can mean up to one dollar saved out of every five spent for gas! Its outstanding gas-saving ability stems from two new engineering refinements.

The first is an *economy-contoured camshaft* that's machined to provide a lower lift and reduced valve overlap. This feature offers up to 10% less fuel consumption in every '59 Chevy Series 30 or 40 model with standard Thriftmaster 6!

The second innovation is a new *maximum-economy option* that operates in combination with the economy-contoured camshaft in Series 31 and 32 models. Consisting of a new smaller venturi carburetor and new economy ratio rear axle, this option boosts fuel economy as much as an additional 10%! Thus, Series 31 and 32 Chevies with the new Thriftmaster 6 can be equipped to reduce your operating costs by up to 20%!

This is the kind of low-cost truck power you've been looking for—so see your Chevy dealer soon for all the details! . . . Chevrolet Division of General Motors, Detroit 2, Mich.

**Optional at extra cost.*

†And it uses regular gas, like all Chevy engines.

CHEVROLET TASK·FORCE 59 TRUCKS

CHEVROLET

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Dependable Water Meters

442 Simplicity of design and rugged construction help keep American Meters operating quietly and registering water flow accurately. For information on these long-lived, trouble-free water meters, write BUFFALO METER CO., INC., 2902 MAIN ST., BUFFALO 14, N. Y.

Standpipes and Reservoirs

443 Durable, bottletight, steel water storage tanks and reservoirs for every municipal use are discussed in terms of construction, application, and size in CB&I's bulletin "Standpipes and Reservoirs." For your copy, write CHICAGO BRIDGE & IRON CO., 2127 McCORMICK BLDG., CHICAGO 4, ILL.

Long-Wearing Long Pitch Pintle Chain for Sewage Treatment

444 Moline long pitch pintle chain is ideal for grit washers, sludge collectors, scum removers. It is designed to provide great strength at minimum weight. Forged-T head pins with coffers prevent pins from turning and entrance of grit and minimize wear. For details, write MOLINE MALLEABLE IRON CO., ST. CHARLES, ILL.

Stop costly infiltration in storm drains and sewer lines with the famous

CENTRILINE PROCESS

Centrilining is effective in diameters from 6" to 144"

The Centriline Process of centrifugally applying a cement-mortar lining to pipes in place can be as effective in preventing infiltration in sewer and storm lines caused by external pressures as it is in permanently eliminating leakage in water mains caused by interior pressures and corrosion. Infiltration means over-taxed pipe line capacity and higher costs for treatment and disposal. Infiltration also results in the settlement of streets and other surfaces. Centriline's 6 million feet of pipe rehabilitation experience is on call to help with these problems.

Lining is placed when infiltration has been stopped by natural lowering of water table, plugging leaks from the interior, or by well pointing. A qualified Centriline engineer will be happy to discuss our quick and economical method of repairing concrete and terra cotta storm drains and sewer lines in sizes from 6" to 144". For further information, write today for your copy of our free booklet which fully describes the Centriline Process.

CENTRILINE CORPORATION

A Subsidiary of Raymond International Inc.

140 Cedar Street
New York 6, N. Y.
WOrth 2-1429

Branch Offices in Principal Cities of the United States, Canada and Latin America.

Sturdy Fencing

445 Anchor steel chain link fencing gives maximum security to parking lots, municipal buildings and play areas at low initial cost. It is galvanized after weaving for extra life and minimum maintenance. For details, write ANCHOR FENCE, 6902 EASTERN AVE., BALTIMORE 24, MD.

All-Weather Cabs Keep Tractor Shovels on the Job

446 Campbell custom-built cabs are designed for all model "payloaders." They are sturdily constructed, easy to attach, and snug fitting. They give the tractor shovel operator full visibility and full protection from inclement weather. For details, write CAMPBELL DETACHABLE CAB CO., WAUCONDA, ILL.

Filters for Swimming Pools and Water Supplies

447 *Bulletins* 626 and 651 both discuss filters. The former gives detailed information on diatomite filters for swimming pools; the latter describes diatomite filters for municipal water supplies. For copies of both these bulletins, write R. P. ADAMS CO., INC., 202 E. PARK DRIVE, BUFFALO 17, N. Y.

Sand and Gravel for Filter Plants

448 To build dependability into rapid sand filters, water departments are advised to specify sand and gravel from a clean, inland water supply. Northern sand and gravel have been meticulously graded and feature the chemical and physical properties needed to assure proper filtering. For details, write NORTHERN GRAVEL CO., P. O. BOX 307, MUSCATINE, IA.

Buckets for Digging and Rehandling

449 A new, illustrated bulletin gives weights, dimensions and details on dwarf, catch-basin and orange peel buckets for every digging and rehandling need. For your copy, write THE HAYWARD CO., 50 CHURCH ST., DEPT. A, NEW YORK 7, N. Y.

Rapid Sewer Cleaning

450 Sewer cleaning is done with dispatch and neatness when a Truck-Loder is on the job. Debris goes directly from sewer to truck; there's no manual bucket dumping, no deposit dumped on the street, no shoveling from street to truck. For complete information, write FLEXIBLE INC., 3786 DURANGO AVE., LOS ANGELES 34, CALIF.

Rollers and Compactors

451 Various types of compaction equipment in use today, including rollers and vibratory compactors, the fundamental problems encountered in the efficient compaction of various materials, and the correct application of the many types of equipment available are discussed in a nontechnical pamphlet published by THE GALION IRON WORKS & MFG. CO., GALION, OHIO. An extensive glossary pertinent to the subject is also included.

Simplifies Brush Disposal

452 Bulky brush and tree limbs up to 6 inches in diameter are quickly and economically consumed by the Asplundh Chipper, which turns them into chips that can be easily hauled away. For illustrated literature on this safe, simply designed machine, write ASPLUNDH CHIPPER CO., 505 YORK ROAD, JENKINTOWN, PA.

(See page 56 for more Bulletins)

Lower Battery Drain—No need now for heavy duty batteries and generators. Current drain on "stand-by" is 1/3 that of tube-type receivers, 1/15 with battery saver switch.

Greater Reliability—Transistors, printed circuits and new design all greatly increase reliability.

Smaller, Lighter—Approximately 1/2 the weight, 1/3 the size of other models. Mounting in tight quarters easier than ever.

Completely transistorized receiver and power supply... Another Motorola First!

Here is 2-way radio with efficiency and reliability never before approached in mobile radio. No more tubes in the receiver —no more vibrators in the power supply . . . all are replaced by long life, dependable transistors. No longer is it necessary to idle the vehicle to keep the radio operating. Savings in gasoline, engine wear and batteries add up fast. Let us prove to you how MOTRAC radio will cut your radio operating costs . . . while giving you reliability never before possible. Write today.

MOTOROLA 2-WAY RADIO

Motorola Communications & Electronics, Inc. • A Subsidiary of Motorola Inc., 4501 Augusta Blvd., Chicago 51, Ill.

MOTRAC is a trademark of Motorola Inc.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Well-Balanced Shovels and Scoops

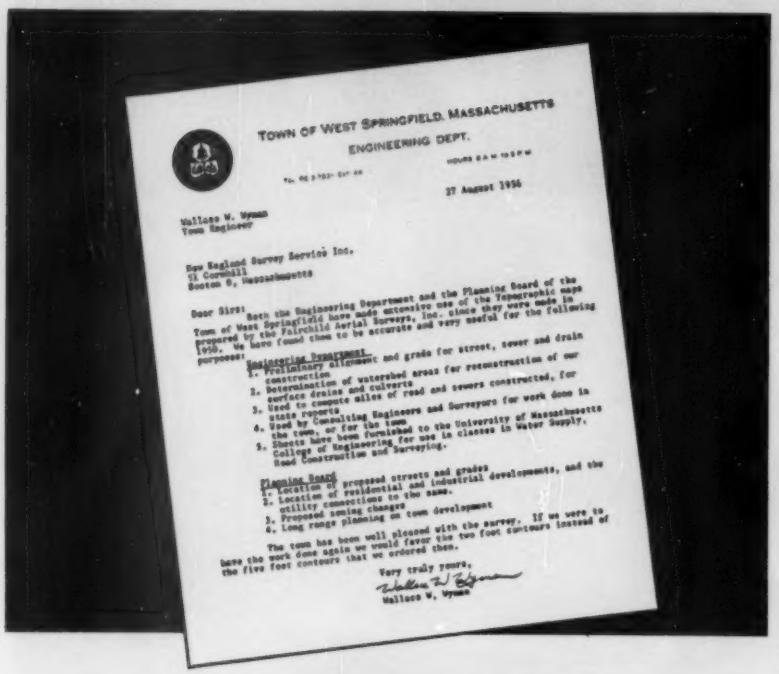
453 When shovels and scoops have perfect hang and balance, as well as tough construction, lifting is done with less strain and the implements last longer. For information on steel and acid-resistant aluminum shovels and scoops, write THE WOOD SHOVEL & TOOL CO., PIQUA, OHIO.

Dependable Gate Valves

454 Gate valves that assure ease of operation, watertight closure and years of trouble-free performance and come in sizes from 2 inches to 72 inches are described in the *L & R Gate Valve Catalog*, available from THE LUDLOW VALVE MFG. CO., INC., TROY, N. Y.

Construct Stronger Bridge Floors More Easily

455 Faster, more economical bridge flooring, maximum lateral stability and quieter riding surface are achieved with Greulich 4-way grids. They require 20% fewer field field welds and can be filled half depth with concrete where a closed surface is desired. Full facts may be obtained from HARVEY F. NEEL, MGR., DIVISION A-1, KERRIGAN IRON WORKS, NASHVILLE, TENN.


TOWN OF WEST SPRINGFIELD, MASSACHUSETTS
ENGINEERING DEPT.
27 August 1956
Wallace W. Wyman
Town Engineer
New England Survey Service Inc.
51 Cornhill
Boston 8, Massachusetts
Dear Sirs:
Both the Engineering Department and the Planning Board of the Town of West Springfield have made extensive use of the Topographic maps prepared by the Fairchild Aerial Surveys, Inc. since they were made in 1950. We have found them to be accurate and very useful for the following purposes:
Engineering Department
1. Preliminary alignment and grade for street, sewer and drain construction
2. Determination of watershed areas for reconstruction of our surface drains and culverts
3. Used to compute miles of road and sewers constructed, for state reports
4. Used by Consulting Engineers and Surveyors for work done in the town, or for the town.
5. Sheets have been furnished to the University of Massachusetts College of Engineering for use in classes in Water Supply, Road Construction and Surveying.
Planning Board
1. Location of proposed streets and grades
2. Location of residential and industrial developments, and the utility connections to the same.
3. Proposed zoning changes
4. Long range planning on town development
The town has been well pleased with the survey. If we were to have the work done again we would favor the two foot contours instead of the five foot contours that we ordered then.
Very truly yours,
Wallace W. Wyman

How a Fairchild Aerial Survey helped West Springfield's Engineering Department and Planning Board

The town engineer of West Springfield, Mass., faced with a limited budget, chose a Fairchild survey for his mapping needs. The results: Six years of use and satisfaction for the Engineering Department and Planning Board.

Whether your community is as small as West Springfield or as large as New York, Fairchild's aerial surveys and contour maps can help every city department.

Call or write the office nearest you for details. Find out for yourself why we say—*if you want it fast, and right the first time, call Fairchild.*

FAIRCHILD AERIAL SURVEYS, INC.

LOS ANGELES, CALIF.: 224 East Eleventh St. • **NEW YORK CITY, N.Y.:** 30 Rockefeller Plaza • **CHICAGO, ILLINOIS:** 111 W. Washington St. • **LONG ISLAND CITY, N.Y.:** 21-21 Forty-First Ave. • **TALLAHASSEE, FLORIDA:** 1514 S. Monroe St. • **BOSTON, MASS.:** New England Survey Service, Inc., 51 Cornhill • **SHELTON, WASHINGTON:** Box 274, Route 1

Concrete Steel-Cylinder Transmission Mains

456 When laying and service conditions are difficult, high initial and high ultimate capacity mandatory, long service with minimum maintenance looked for, concrete steel-cylinder pipe is applicable. PRICE BROTHERS manufactures such pipe for water transmission. For details, write the company at E. MONUMENT AVE., DAYTON, OHIO.

Tractor Shovel

457 Four-wheel drive, down-pressure and powerful digging ability helps the 1¼-yard rubber-tired Michigan Model 75A successfully tackle such tough assignments as road-widening, trenching for culverts, breaking out and loading concrete, digging pit-run gravel. For details, write CLARK EQUIPMENT CO., CONSTRUCTION EQUIPMENT DIV., 2495 PIPESTONE RD., BENTON HARBOR 23, MICH.

Steam Cleans Equipment

458 All-electric Hypressure Jenny cleans, sanitizes, deodorizes and Jenolizes by combining the right amounts of heat, pressure, cleaning solution and a minimum of moisture. It is ideal for use in plants and on machinery where fumes, smoke, flame or excess water would be objectionable or hazardous. For details on the Model E-350, write HOMESTEAD VALVE MFG. CO., CORAOPOLIS, PA.

Delivers Dependable Power

459 Those features which make it possible for Roiline engines to give more horsepower per fuel dollar and long service with minimum maintenance and low upkeep, are discussed in *Bulletin* E-9. For your copy, write WAUKESHA MOTOR CO., WAUKESHA, WIS.

Low-Cost Refuse Collection

460 Whether handling containerized refuse or working hand-loaded routes, the Dempster-Dumpmaster brings efficiency to refuse collection. Its high-speed, automatic loading cycle and large-capacity packer body point to speed and low per-cubic-yard costs. For complete information, write DEMPSTER BROTHERS, DEPT. AC-2, KNOXVILLE 17, TENN.

Quieter, Smoother-Operating Rotary Compressor

461 Because it operates at slower running speed—1700 rpm at full load—this air compressor consumes less fuel. Air is 100° cooler than with old-type compressors, and better control holds pressure constant. It is easily transported, smoother and quieter to operate. *Catalog* JCR8 describes it; write THE JAEGER MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO.

Controlled, Off-Street Parking

462 *Bulletin* No. 580 can help you find an automatic solution to your parking problems. It describes off-street parking lot systems with the flexibility needed to fit individual needs yet able to provide controlled parking and good income. For your copy, write PARCOA DIVISION, JOHNSON FARE BOX COMPANY, 4621 N. RAVENSWOOD AVE., CHICAGO 40, ILL.

Stops Infiltration in Storm Drains and Sewer Lines

463 The Centriline Process, so effective in eliminating leakage in water mains caused by interior pressures and corrosion, is equally effective in stopping infiltration caused by external pressures in concrete and terra cotta storm drains and sewer lines 6 inches to 144 inches in size. For a booklet describing this process, write CENTRILINE CORP., 140 CEDAR ST., NEW YORK 6, N. Y.

(See page 59 for more Bulletins)

Best for turf maintenance...
Worthington Mowing Equipment

Worthington Model F with "Wing-Lift" hydraulic control offers either three, four or five units.

The Worthington Triplex delivers three-gang capacity at power-mower price!

Compare them all! Test them on your own grounds and see why Worthington is *best by any test* for fine turf area maintenance. The famous Worthington Model "G" Tractor, *geared right for mowing*, can pull gangs into areas inaccessible to other units.

Check the Worthington Fairway Mowers that give that "lawn-like" look anywhere they're used. Note the levers that add up to 50 pounds additional pressure on the rear roller to prevent skipping and bobbing. See how the mowers can be adjusted by hand—saving up to an hour's time each day. See how Worthington's unique articulated frames permit complete cutting coverage that follows the roughest of terrain.

It's easy to arrange a "NO OBLIGATION" demonstration and job test Worthington equipment on your problem mowing. Just use the coupon below to arrange a "NO OBLIGATION" *on-the-job test* or to request complete literature.

WORTHINGTON MOWER COMPANY

STROUDSBURG, PENNSYLVANIA

Subsidiary of Jacobsen Manufacturing Company
Racine, Wisconsin

The most complete line of large area grass maintenance equipment in the world!

9-017-1

WORTHINGTON MOWER COMPANY
Stroudsburg, Pennsylvania, U.S.A.

Gentlemen:

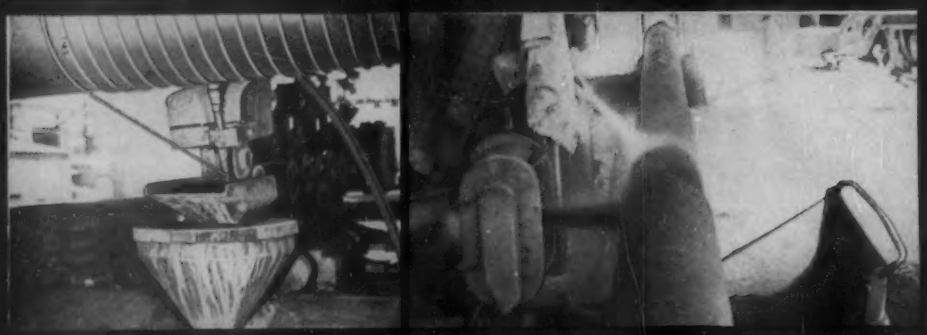
☐ Please send complete literature.
☐ Please arrange a NO OBLIGATION demonstration.

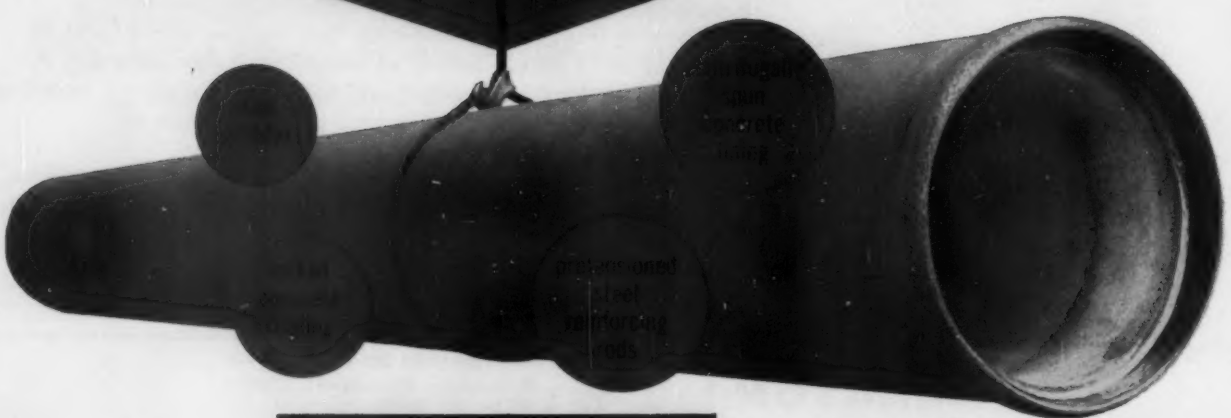
Name _____ Title _____

Address _____

City _____ Zone ____ State _____

improving a superior product





Los Angeles: 4635 Firestone Blvd., South Gate, Calif., LOrain 4-2511

Hayward: P.O. Box 630—JEfferson 7-2072

San Diego: P.O. Box 13—CYpress 6-6166

Phoenix: 2025 South 7th St.—ALpine 2-1413

Portland: 518 N.E. Columbia Blvd.—BUtler 5-2531

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Achieving a Dependable Municipal Water Supply

464 Properly drilled water wells, pumps designed for the job to deliver a specified quantity of water, water treatment to supply desired quality of water, and proper maintenance and repair service all contribute heavily to a dependable municipal water supply system. LAYNE & BOWLER INC., MEMPHIS 8, TENN., offers all these components to municipalities.

One-Ton Power Roller

465 This 1-ton Rollpac proves itself a valuable member of municipal rolling fleets. It rolls and smooths newly laid sod at golf courses, maintains tennis courts, crease rolls behind a muliton roller, smooths asphalt surfacing at parking lots. For details and specifications, write ROSCO MFG. CO., ROLCAR DIV., 3118 SNELLING AVE., MINNEAPOLIS 6, MINN.

Cleans Utility Service Boxes

466 Quick-acting, easy-to-operate Perfectool is a miniature two-jawed clamshell bucket that rids water and gas service boxes and valves of stones, dirt and debris without requiring the boxes to be dug up. For descriptive literature, write PERFECTOOL CO., 4611 N. CLARK ST., CHICAGO 40, ILL.

Versatile Earthmoving Rigs

467 Massey-Ferguson Work Bulls with Davis-engineered attachments bring to trenching, loading, clearing, lifting and material handling jobs speed, maneuverability and proper applications of power. For details, write MASSEY-FERGUSON INDUSTRIAL DIVISION, 1009 SOUTH WEST ST., WICHITA 13, KANS.

Police Motorcycles

468 Officers mounted on Harley-Davidson Solo motorcycles or patrolling business and residential areas in Servi-Cars have increased mobility, and therefore are more flexible, more effective law enforcement agents. To learn how these motorcycles can bring added safety to your community, write HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS.

Flasher Warning Lights

469 Pacific Mercury's new line of flasher warning lights includes a transistorized Neon light with an epoxy encapsulated cartridge with a special circuit that extends battery life from 4 to 8 months. It will operate in extremes of temperature, and a Solarstat automatically turns it on and off according to degree of daylight present. For details, write PACIFIC MERCURY, 14052 BURBANK BLVD., VAN NUYS, CALIF.

Improves Concrete Pavement

470 Through job story reports, *Booklet* MBR-P-13 discusses problems encountered in concreting of airport pavements and structures, the importance of quality control and good concreting practice. The roles played by Pozzolith and Masterplate in improving the quality and durability of concrete are also cited. For your copy, write THE MASTER BUILDERS CO., 7016 EUCLID AVE., CLEVELAND 3, OHIO.

Park and Playground Equipment

471 Game-Time park and playground equipment, designed in cooperation with recognized authorities on play guidance, is now available in eye-catching color. For details on these strong, safe play units, and information on a free planning and layout service, write GAME-TIME, INC., 206 JONESVILLE ROAD, LITCHFIELD, MICH.

Accurate Water Meters

472 There is a Hersey meter for every muncipal water measurement job. Registers are low in maintenance cost, high in accuracy, and precision-engineered to give long service. For literature on the complete line, write HERSEY MFG. CO., DEDHAM, MASS.

Municipal Castings

473 Standard or special gray iron or nonferrous castings in nearly every style, shape and size are available from BUFFALO PIPE & FOUNDRY CORP. to meet every municipal need. For full description, write DEPT. J, BOX 55—STATION B, DE 6764, BUFFALO 7, N. Y.; request Bulletin M II.

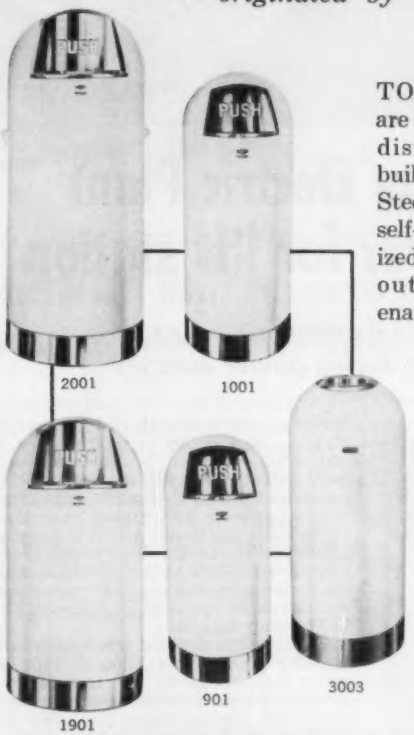
Portable Air Compressor

474 This unit operates two 85-pound breakers simultaneously. It's equipped with a 6-cylinder Hercules Industrial engine (3 for compression, 3 for power) and has 125 cfm capacity at only 1165 rpm. For literature, write GORDON SMITH & COMPANY, INC., BOWLING GREEN, KY.

(See page 60 for more Bulletins)

Encourage neatness with **TORPEDO**® *waste receptacles*

---originated by **LAWSON**



Attractive, modern-style TORPEDO waste receptacles are the perfect solution to waste disposal problems in public buildings, parks, airports, etc. Steel body, stainless steel trim, self-closing push door. Galvanized inner container, bonderized outer shell, long-life baked enamel finish.

Outer shell lifts easily for quick emptying.

5 SMART MODELS . . .

PUSH-DOOR models:

No. 901 — 12 gal.
No. 1001 — 15 gal.
No. 1901 — 17 gal.
No. 2001 — 21 gal.

DROP-IN model:

No. 3003 — 16 gal.

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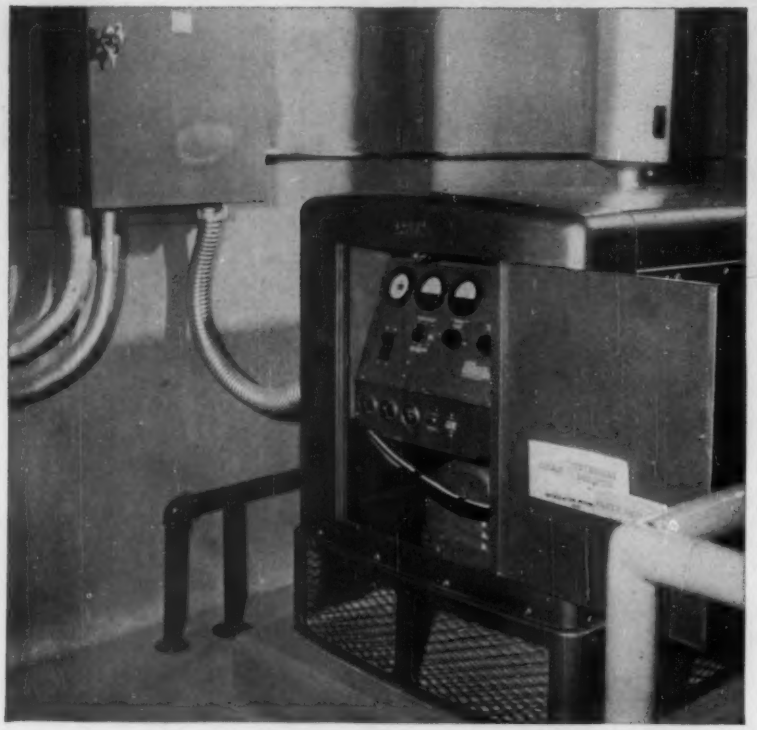
Onan NEWS REPORT



Onan Standby Electric Plant assures power for lift station

35KW automatic starting unit keeps sewage flowing during power outages

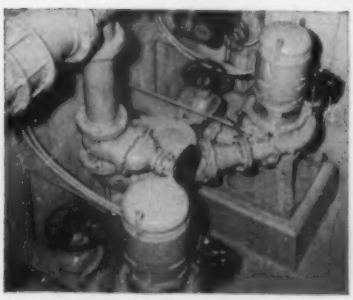


Photo shows two of the three sewage pumps in the lift station. Pumps are installed 25 feet below grade. Total lift is 36 feet.

When power is interrupted to the lift station, that entire sewage system is out of commission. To avoid this hazard, the community of Roseville, Minnesota installed an Onan Electric Plant. When power is interrupted the plant starts itself and feeds current to pumps, lights and controls. When power is restored the plant stops automatically. Equipment on the standby power circuit includes two 5 H.P. and one 7½ H.P. pump motors.

Onan builds gas and gasoline driven standby plants from 1,000 to 150,000 watts and automatic line transfer engineered for each model. Onan portable air-cooled plants range from 500 to 10,000 watts. Call your Onan distributor.

See your Onan distributor or write for information

D. W. ONAN & SONS INC.

2533 University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Speeds Placing Pipe Underground

475 When a Hydrauger boring machine is on the job, excessive trenching and backfilling are avoided and placement of water, sewer and electrical conduit lines underground is done more quickly and economically. Complete details are contained in the *Hydrauger Booklet*. For your copy, write HYDRAUGER CORP., LTD., 681 MARKET ST., SAN FRANCISCO, CALIF.

Custom-Built Swimming Pools

476 If you are planning to enlarge summer recreation facilities in your community by building a municipal swimming pool, now is the time to check with PADDOCK OF CALIFORNIA, 14606 ARMINTA ST., VAN NUYS, CALIF. Their engineering integrity, skilled craftsmanship, and fine equipment will assure a pool of highest quality and feature.

For Faster, More Efficient Record Keeping

477 The elements of the Kardex filing system speed record finding and filing and make possible more filing capacity in a given amount of space. For a free case history with municipal application, write REMINGTON RAND, ROOM 1229, 315 FOURTH AVE., NEW YORK 10, N. Y.; request *Case History* CH1150.

Time-Proved Parking Meters

478 Automatic Park-O-Meters permit split-rate setting. Their coin slot accepts pennies, nickles, dimes, quarters or tokens singly or in combination. Their service is wholly reliable, totally dependable. For literature, write MAGEE HALE PARK-O-METER CO., 3909 WILLOW SPRINGS ROAD, OKLAHOMA CITY 12, OKLA.

Litter Baskets

479 Norwich street and park baskets are 34 inches deep, 22 inches across the top, 18 inches at bottom and weigh 43 pounds. Wherever placed, they invite the public to keep its community clean. For complete information on these sturdy receptacles, write NORWICH WIRE WORKS, INC., 159 STATE ST., NORWICH, N. Y.

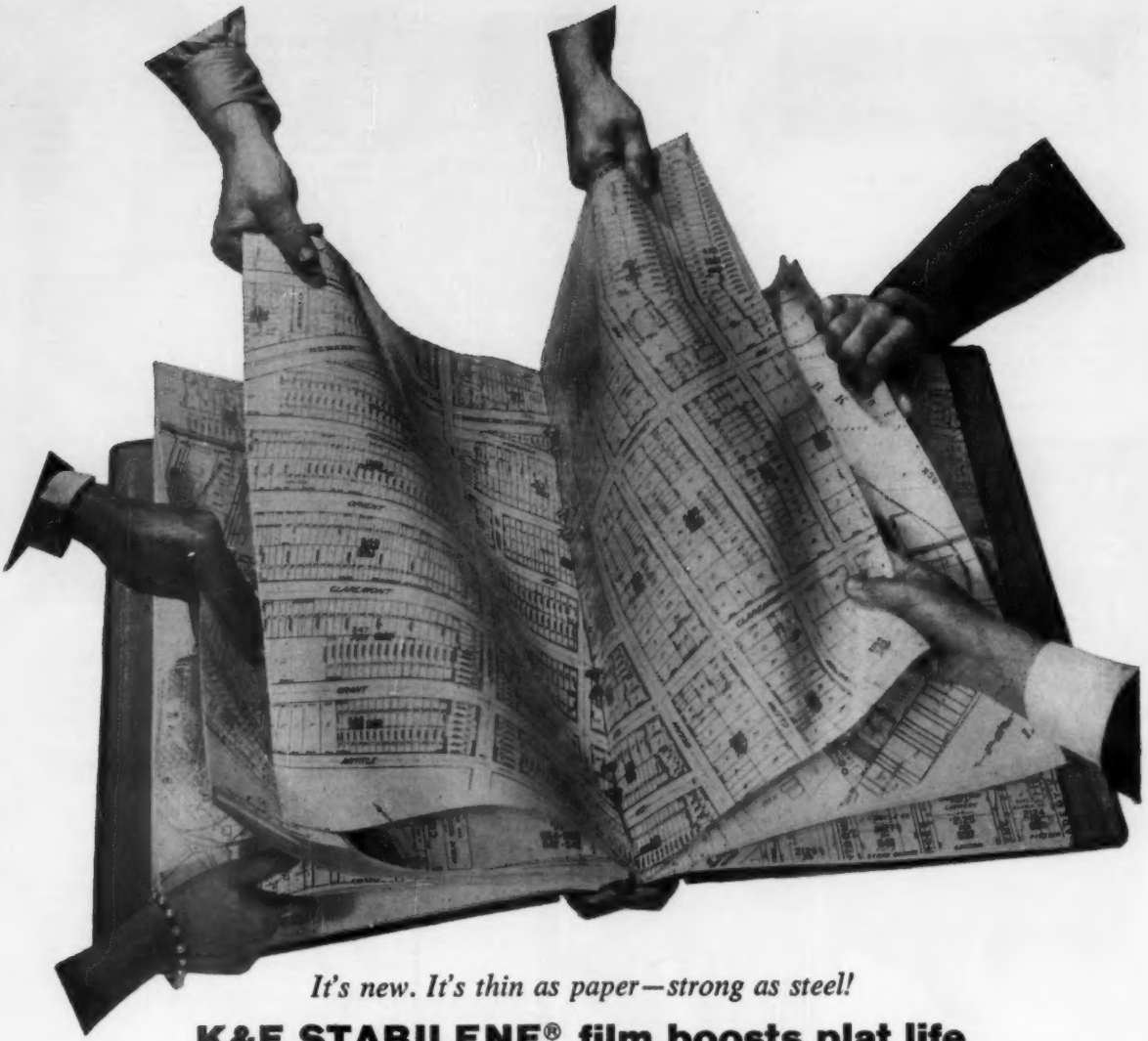
Sewer Pipe to Better Fit the Particular Job

480 There are now five engineering classifications of K & M asbestos-cement sewer pipe to help you more exactly meet the requirements of soil conditions, as well as depth of cut, width of trench, manner of bedding. Crushing strengths, sizes and a crushing table based on the Marston formula are described in a booklet, available from KEASBEY & MATTISON CO., AMBLER, PA.

Edges 80 Miles of Turf Per Day

481 This rugged, tractor-drawn edger flush cuts or simultaneously cuts and troughs, on dry or wet turf. It fits any 3-point-hitch tractor, slices through a 4-inch soil build up as deftly as it trims grass runners, sidewalks or overlying curbs. For details on the "Kurb-Dresser," write KD MFG. CO., CLEBURNE, TEXAS.

(See page 62 for more Bulletins)



It's new. It's thin as paper—strong as steel!

K&E STABILENE® film boosts plat life up to ten times that of conventional materials...

Never before has there been anything for plats to equal new K&E Stabilene Plat Film. K&E developed it *especially for this purpose.* Plats reproduced on this film stay completely readable, resist ripping or fraying up to 10 times longer than the normal life expectancy of conventional materials.

Here's why! K&E Stabilene Plat Film, on a DuPont Mylar® base, is actually almost impossible to tear. It's so tough and strong that constant handling will not wear it out, pages will not rip from bindings, plats stay new for years.

What's more, unlike conventional materials K&E Stabilene is 100% waterproof; it can be washed with soap and water. It's easy to keep pages free of spots and smudges. Stabilene saves money, too, for it means fewer expensive replacements.

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You can buy K&E Stabilene in rolls, sheets or special sizes to order... in buff, green or white... .005" thickness. It's easy to handle, lies flat or can be rolled for storage or shipment. For details, free samples, mail the coupon today.

KEUFFEL & ESSER CO., Dept. AC-2 Hoboken, N. J.
Please rush me free samples and facts about new K&E Stabilene Plat Film.

Name & Title: _____

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1808

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 50

Benefits of Voting Machines

482 An 18-minute, 16mm color film illustrates the potential benefits of Automatic voting machines to the voters, the candidates, the precinct and election board workers. Arrangements for showings without charge may be made with AUTOMATIC VOTING MACHINE CORP., JAMESTOWN, N. Y.

New Line of Fire Apparatus

483 For a comparison of 2-wheel and 4-wheel drive for fire apparatus and what a 5-man cab means in seeing and seating, write FOUR WHEEL DRIVE AUTO CO., CLINTONVILLE, WIS.

Noncorrosive Pipe for Water Purification

484 This lightweight, resin-rubber blend pipe, which doesn't rust, corrode or rot when subjected to highly corrosive chemicals, is proving ideal for use in water purification plants. Called Kralastic, it can be either solvent welded or threaded for use with standard fittings and is available in IPS sizes. For details, write UNITED STATES RUBBER, NAUGATUCK CHEMICAL DIV., 244 ELM ST., NAUGATUCK, CONN.

Fluorescent Lamps 2½ Times Brighter

485 By installing Super-Hi fluorescent lamps in your municipal plants, you can get more light from the same number of fixtures. "Ultralume" phosphors maintain maximum light levels and special cooling chambers contribute to longer life. For complete information, write WESTINGHOUSE LAMP DIVISION, DEPT. 57-L-5, BLOOMFIELD, N. J.

Stress-Spun Lighting Standards

486 *Catalog* 400 gives complete engineering tables and information on design features and mounting arrangements for Hy-Lite stress-spun concrete standards for street and highway lighting. Also included are data on base types. For your copy, write AMERICAN CONCRETE CORP., 5092 N. KIMBERLY AVE., CHICAGO 30, ILL.

Special Equipment for Crawler Tractors, Motor Graders

487 *Catalog* MS-1189 pictures and explains attachments and accessories that increase the versatility and working capabilities of Allis-Chalmers crawler tractors and motor graders and add to operator comfort and safety. For your copy, write CONSTRUCTION MACHINERY DIVISION, ALLIS-CHALMERS MFG. CO., MILWAUKEE, WIS.

Everything for the Municipal Swimming Pool

488 Within *Catalog* 385 you fill find a huge stock of swimming pool equipment, supplies and chemicals that will help you to better construct, outfit and maintain your municipal pool. For your copy, write PARAGON SWIMMING POOL CO., INC., 12 PAULDING ST., PLEASANTVILLE, N. Y.

Portable Electric Plants

489 Two new 180-cycle, 2500-watt, 3-phase electric plants make possible more efficient use of time and labor-saving portable electric tools at job sites. Both Model 2.5MV55 (230-volt AC, 115-volt DC) and Model 2.5MV35 (115-volt AC, DC) are offered by KOHLER CO., KOHLER, WIS. They are described in literature available from the company.

Repair Clamps for Water and Sewage Lines

490 Breaks and holes in your small-diameter water and sewage lines? Seeking efficient, fast, economical repair? Then you'll want to investigate Dresser's new 2- and 3-inch "360" all-around repair clamps, applicable for both asbestos-cement and cast iron lines. Literature is available from DRESSER MFG. DIV., ONE OF THE DRESSER INDUSTRIES, INC., BRADFORD, PA.

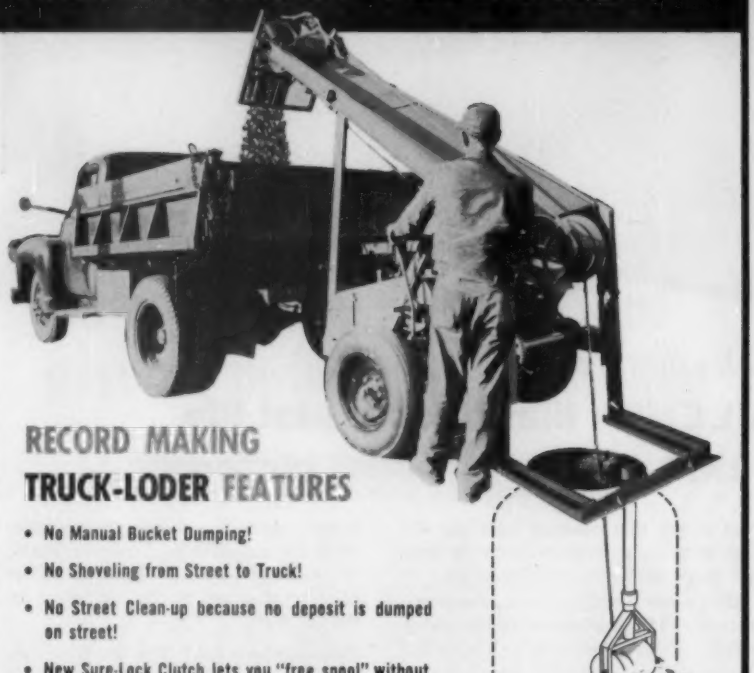
Flexible Sewer-Pipe Joints

491 To eliminate costly trench-work delays and speed installation, to prevent infiltration at pipe joints, to defeat corrosion and insure water-tight, maintenance-free joints in municipal sewer and drain lines, specify Tylox flexible rubber gaskets. For complete information, write HAMILTON KENT MFG. CO., 427 W. GRANT ST., KENT, OHIO.

Legible Traffic and Street-Name Signs

492 A complete line of traffic control signs, street-name assemblies and custom-designed signs are the subject of a new catalog, available from THE MIRO-FLEX CO., INC., 1824 E. SECOND, WICHITA 7, KANS. Signs are embossed for greater strength, rigidity and legibility; they are made on zinc-coated, Bonderized steel, and finished with high-grade baked-on enamel.

It's setting new Sewer Cleaning Records from coast-to-coast!



RECORD MAKING TRUCK-LODER FEATURES

- No Manual Bucket Dumping!
- No Shoveling from Street to Truck!
- No Street Clean-up because no deposit is dumped on street!
- New Sure-Lock Clutch lets you "free spool" without delay to disengage cable drum!
- New Instant Dual Speed Transmission* shifts into low or high speed instantly without clash of gears!

*available at extra cost.

FLEXIBLE INC.

3786 DURANGO AVE., LOS ANGELES 34, CALIF.
1005 SPENCERVILLE ROAD, LIMA, OHIO
415 SOUTH ZANGS BLVD., DALLAS, TEXAS

A NATIONAL CASH REGISTER saves time for Miss M. Day, cashier Collector of Revenue.

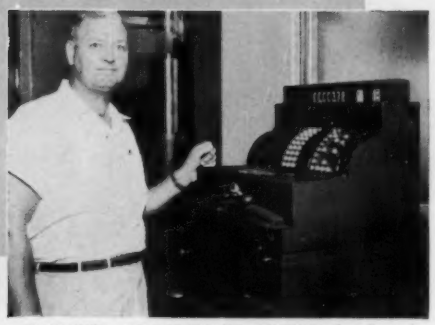
SGT. C. H. HASWELL finds that a National speeds handling of revenue in the Traffic Violation Bureau.

C. H. PRITCHARD, CITY CLERK-TREASURER, AND MRS. L. CHAMBERS, PAYROLL CLERK, have discovered that a National Accounting Machine handles all posting work with speed and efficiency.

CITY OF RALEIGH

NORTH CAROLINA

THIS NATIONAL SIMPLIFIES the handling of all transactions for Mrs. E. Wrenn, Court Clerk.



E. GLOVER, COLLECTOR OF REVENUE, is pleased that this National issues machine-printed receipts.

"Our *National* System

pays for itself every year...

saves time, reduces payroll cost, increases efficiency!"

—City of Raleigh, *North Carolina*

"In the city's Traffic Violation Bureau a new National Cash Register System issues printed receipts and certifies traffic tickets at the same time," writes C. H. Pritchard, City Clerk-Treasurer of the City of Raleigh. "By eliminating handwritten receipts, this National cuts in half the time needed to handle each transaction.

"The new National System in the Collector of Revenue Department accumulates income under twenty-two separate machine totals. Thus, this mechanical daily cash report, which we file to substantiate our daily bank deposit, has eliminated many costly hours of manual auditing.

"In every department where we use a National Machine we find that it increases our record-keeping efficiency. Our National System pays for itself every year through the savings it makes for the city."

C. H. Pritchard

City Clerk-Treasurer of the City of Raleigh

Your city or county, too, can benefit from the time- and money-saving features of a National System. Nationals pay for themselves quickly through savings, then continue to return a regular yearly profit. National's world-wide service organization will protect this profit. Ask us about the National Maintenance Plan. (See the yellow pages of phone book.)

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio

1039 OFFICES IN 121 COUNTRIES • 75 YEARS OF HELPING BUSINESS SAVE MONEY

*TRADE MARK REG. U. S. PAT. OFF.

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ACCOUNTING MACHINES

ADDING MACHINES · CASH REGISTERS

NCR PAPER (NO CARBON REQUIRED)

GENERAL ELECTRIC INTRODUCES

NEW reliable, twist-lock photoelectric control

The new General Electric photoelectric control—designed for years of reliable service—will save you money in the long run.

Here are five reasons why:

1. Built-in Thyrite* surge protection at no extra cost.
2. Long tube life achieved by continuous burning of amplifier tubes at well below their rated values.
3. Relay contact (the only moving part) built and tested for years of reliable service.
4. Basic circuit proved dependable by years of actual field operation.
5. Quality construction, with printed circuit and dip-soldered connections.

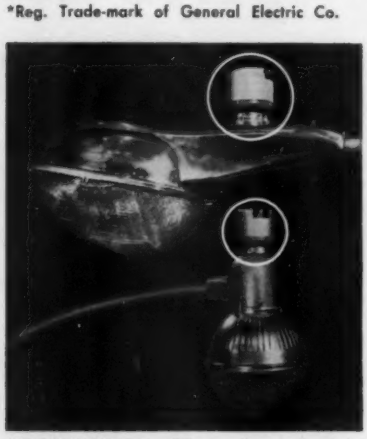
For long-range economy in your street-lighting control circuit, call your nearby G-E Apparatus sales engineer or agent and ask to see the new twist-lock photoelectric. Or, write today for all the details. General Electric Company, Schenectady 5, New York. 450-8

Progress Is Our Most Important Product

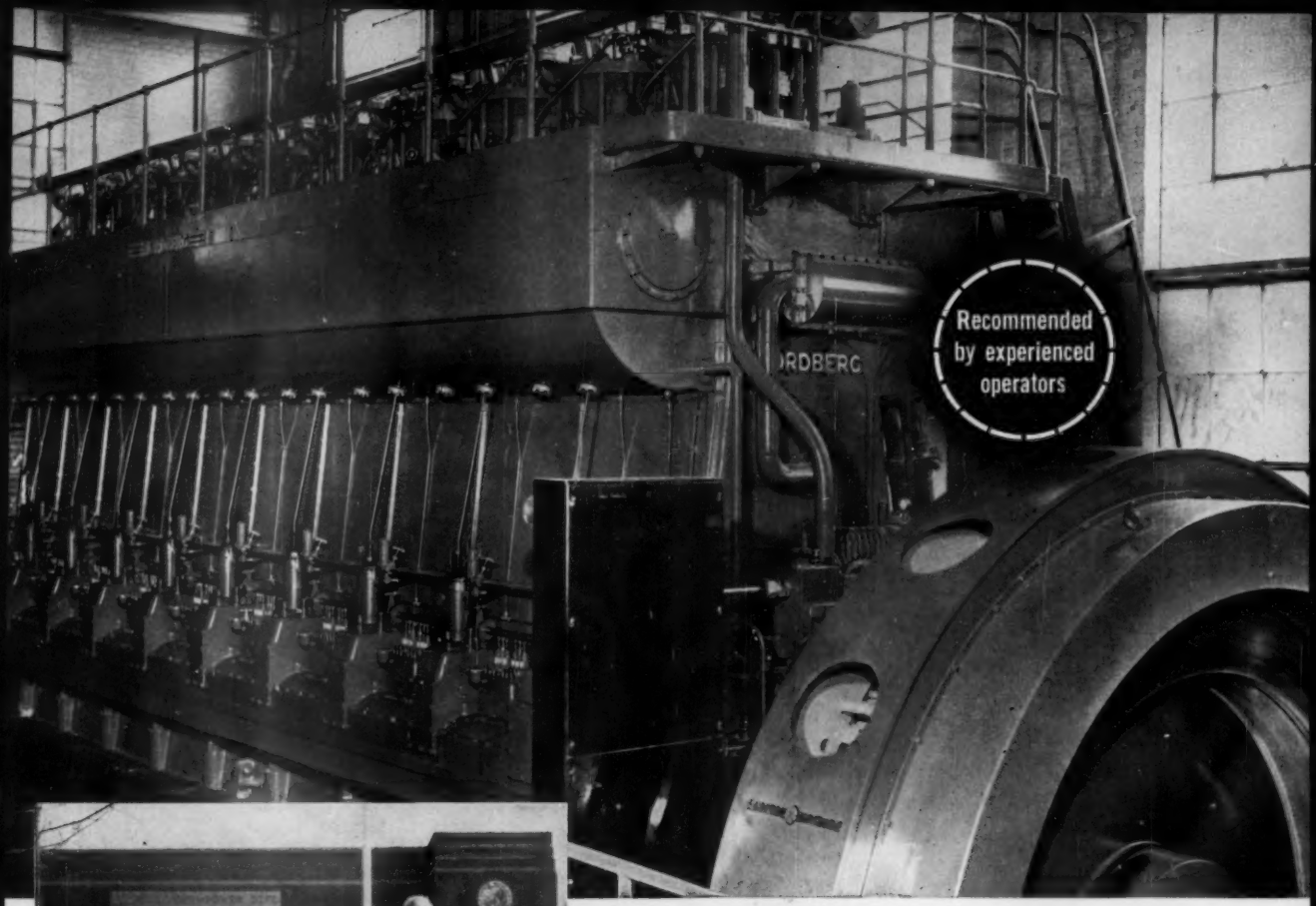
GENERAL ELECTRIC

BUILT-IN THYRITE* PROTECTION—an exclusive G-E feature—guards against damage from induced voltage surges, eliminates added cost of external secondary arrestor.

*Reg. Trade-mark of General Electric Co.



ADAPTABILITY—New photoelectric control fits General Electric mercury "Power Pack" (top) and mercury or filament Form 101 hoods, and is designed to NEMA and EEI standards.



Mr. Thomas A. Walsh, Manager, Light & Power Department, Hudson, Mass., says:

"I honestly feel you can't beat a Nordberg . . ."

Mr. Walsh writes: *"Our first Nordberg ran 32,555 hours in four years of operation. Naturally, when we were in the market for another engine we chose another Nordberg. This new engine, a 'duafuel', has only been in operation for a year and a half, and it, too is a 'work-horse' like our other Nordberg. I honestly feel you can't beat a Nordberg for conditions like ours."*

And conditions at Hudson, Mass. are very similar to scores of municipal light and power plants in all parts of the country . . . where economical, reliable, around the clock power is needed to meet the ever-increasing electrical demands. That's why there are so many *repeat orders* for Nordberg Diesel, Duafuel®, and Spark-Ignition Gas engines, from experienced operators like Mr. Walsh. Next time, consult Nordberg on *your* power study . . . builders of America's largest line of heavy duty engines.

NORDBERG MFG. CO., Milwaukee, Wisconsin

Installation Data:
City of Hudson, Massachusetts

Two Nordberg 2-cycle engines of 21½" bore installed, totaling 9350 bhp:

- First engine, a 10-cylinder Nordberg Diesel unit, rated 4250 bhp.
- Second engine, a 10-cylinder Nordberg Duafuel® unit, rated 5100 bhp.

NORDBERG

DIESEL • DUAFUEL® AND SPARK-IGNITION GAS ENGINES

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P857

to build confidence with taxpayers . . .

SPEED, ACCURACY, PROTECTION PLUS FOR MUNICIPAL CASH CONTROL

Fast, sure, safe cash control is expected of modern municipal administrations. That's the kind you get, too, with a Burroughs Receipting and Validating Machine.

ITEM: The Burroughs Receipting and Validating Machine gives the taxpayer a machine-certified receipt.

ITEM: It validates, automatically, the exact amount received by the cashier.

ITEM: It simultaneously enters an identical record on locked-in journal.

By thus machine-certifying all monies taken in and accounted for, the Burroughs R. and V. machine protects both the taxpayer *and* those who accept his payments. No wonder this machine has proved itself—and is proving itself over and over again—with forward-thinking, progressive administrations!

A demonstration? Just call our nearby branch office. Or write Burroughs Corporation, Burroughs Division, Detroit 32, Michigan.

Burroughs—TM

Burroughs Corporation

NEW!

5 Engineering Classifications of "K&M" Asbestos-Cement Sewer Pipe!

Now select "K&M" Sewer Pipe that exactly meets the requirements of soil conditions.

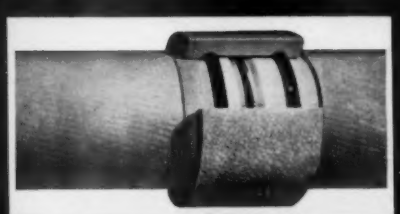
FREE! New booklet includes crushing strengths and sizes of "K&M" Asbestos-Cement Sewer Pipe. Plus handy crushing table based on the Marston Formula. With information on its use in accurately specifying gravity sewer pipe.

These five new crushing strengths in a variety of sizes by "K&M" bring sewer pipe specifications closer than ever to pinpoint accuracy.

Because never before have you been able to so exactly match the requirements of different laying conditions. Now you can select "K&M" Asbestos-Cement Sewer Pipe to suit the depth of cut, the width of trench, the weight of the soil, and the manner of bedding.

You can use more realistic safety factors . . . attain greater over-all economy. Minimize over-buying and costly concrete encasement. Select "K&M" Asbestos-Cement Sewer Pipe specifically designed to fit your job.

Mail This Coupon Today!



Fluid-Tite Coupling connects pipes of varying strengths. Assembles in any weather.

KEASBEY & MATTISON COMPANY
AMBLER, PENNA.

Gentlemen: Please send me your free booklet describing the five new crushing strengths of "K&M" Asbestos-Cement Sewer Pipe, and handy crushing table.

NAME.....

ADDRESS.....

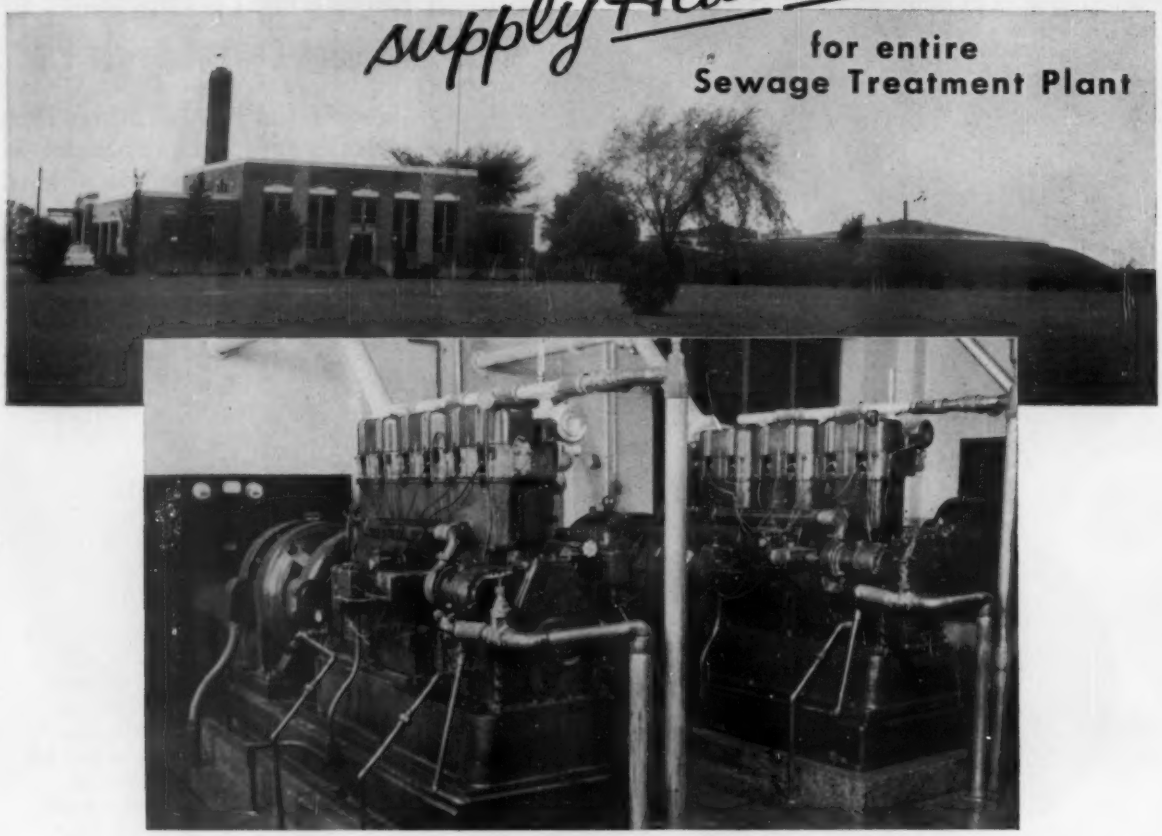
CITY.....ZONE....STATE.....

ORGANIZATION.....

TITLE.....

TWO ROILINE ENGINES supply Heat and Power for entire Sewage Treatment Plant

(Formerly LE ROI)



City of Oshkosh, Wis., sewage treatment plant powered by two Model F-1500 Roiline Engines—1503 cu. in. displ., 6¾-in. bore x 7-in. stroke, counterbalanced crankshaft—each 215 max. hp at 1200 rpm.

Operating continuously, but alternately . . . one engine working, the other standing by . . . two F-1500 ROILINES, driving 50 KW generators, supply heat and power for this entire sewage treatment plant, including the digestors. It is not unusual for ROILINES in service like this to run 30,000 hours or more without major overhaul.

Not only dependable power but low up-keep and long service life is built into ROILINE Engines. With a close-to-perfection combustion chamber that gives you more horsepower per fuel dollar. With full length guided valve stem mechanisms, light weight cam ground aluminum pistons, precision bearings, full flow oil filters, sectional water-cooled exhaust manifolds, large main bearings, full pressure lubrication, and other big features.

For details, send for Bulletin E-9.

ARIZONA, Casa Grande, Engine Service Company
ARKANSAS, Paragould, Wonder State Manufacturing Co.
CALIFORNIA, Long Beach, Engine & Equipment Company
ILLINOIS, Centralia, John Nickell Company
KANSAS, Garden City, Carson Machine & Supply Co.
LOUISIANA, Shreveport, Ingersoll Corporation
MICHIGAN, Reed City, Hafer Engine Company
OHIO, Columbus 19, Cantwell Machinery Company
OKLAHOMA, Chickasha, Chickasha Gin & Mill Supplies
Oklahoma City 9, Carson Machine & Supply Co.
PENNSYLVANIA, Pittsburgh 34, P. C. McKenzie Company
TEXAS, Houston 1, Southern Engine & Pump Co.
Lubbock, Farmers Supply Company
Odessa, General Machine & Parts Co.
Wichita Falls, Nortex Engine & Equipment Co.
WYOMING, Casper, Emrick & Hill Engine & Equipt. Co.

• *The trade mark LE ROI is used under license from Westinghouse Airbrake Co., the trade mark owner.* 409

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN / **New York • Tulsa • Los Angeles**
Factories: Waukesha, Wisconsin and Clinton, Iowa

Keep repair shop expenses down

Use

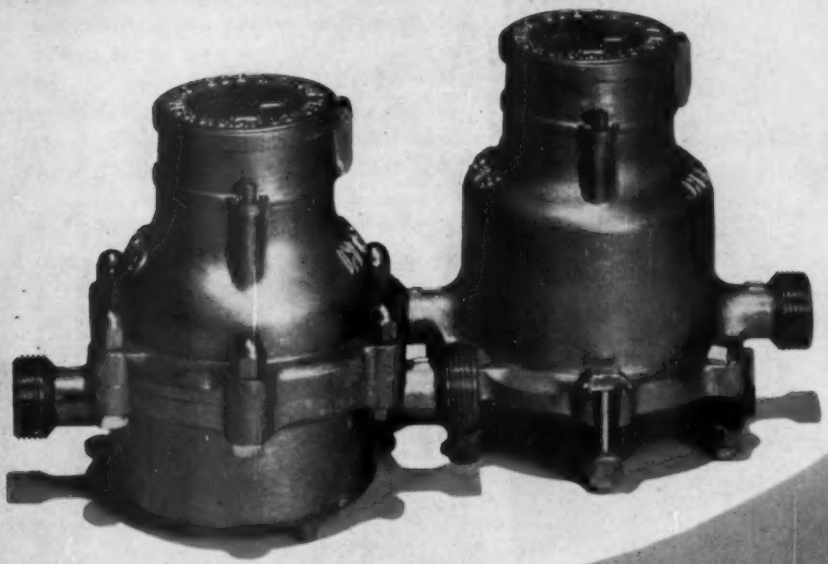
HERSEY

WATER METERS

Nationally known for low Maintenance

Costs and long, accurate

Registration



HERSEY 1859 1959 100 YEARS OF PROGRESS

HERSEY MANUFACTURING COMPANY

(Established 1859)

DEDHAM, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

"You can't buy a better Water Meter than HERSEY."

Steel pipe maintains flow capacity through 30 years of rugged service

Temperatures down to 66° below, hydrostatic heads up to 544 ft

One of the world's northernmost large-diameter pipe lines is located near Fairbanks, Alaska, where United States Smelting Refining and Mining Company has been mining gold since 1928. The company's hydraulic stripping operation calls for a tremendous volume of water, most of it flowing 90 miles from the Chatanika River.

While the supply line consists chiefly of open ditch, over 6 miles of steel pipe carry water across fifteen streams and valleys. The longest crossing totals 7962 ft. The pipe is of lock-bar construction, in 30 ft lengths, 46 and 56 in. ID. Walls vary from ¼ in. to 7/16 in.

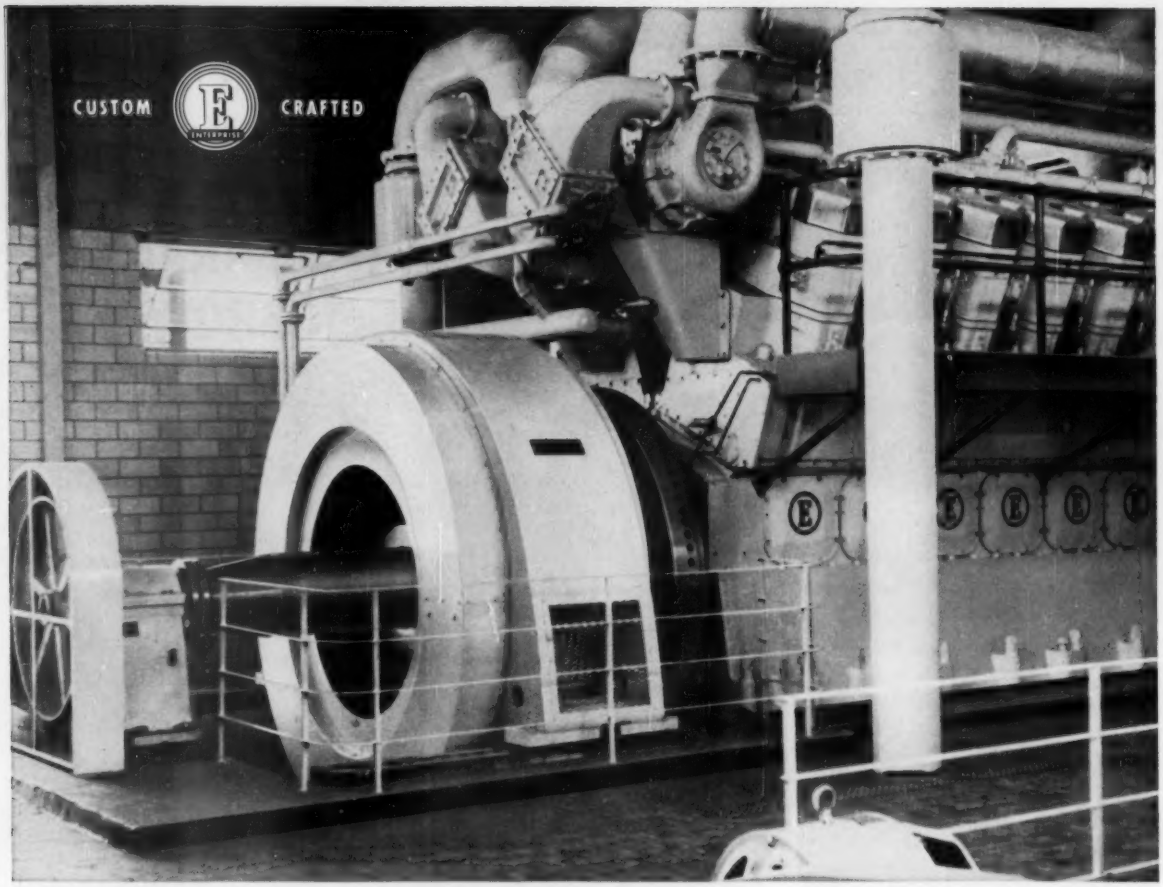
The line has been in service throughout the operating seasons (150 days average) since 1928, except for a wartime shutdown. Despite the unusually high heads, up to 544 ft, and temperatures as low as 66 deg below zero, the pipe has given excellent service. Company officials report that leakage has been minor, and there has been no measurable loss of flow capacity.

Reports like this, from all 49 states, are persuasive evidence of the fine performance of large-diameter steel pipe—even under the most rigorous service conditions. Plan on Bethlehem Steel Pipe for your next water supply project.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL



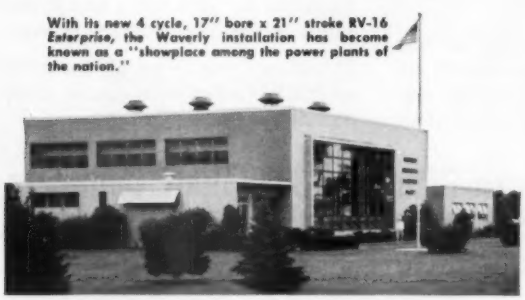
World's Smallest Big-Horsepower Engine Now at Work for Waverly, Iowa

This Enterprise 16-cylinder Turbocharged Dual Fuel Engine is now "on the line" for the Municipal Electric Utility of Waverly, Iowa. It is the largest, most powerful engine ever built by Enterprise—yet its dimensions and weight make it the world's smallest engine in relation to its horsepower output. The Waverly engine is rated 4,890 hp—3,500 kw—at 360 rpm. Top-rated capacity of the RV: 7700 hp at 400 rpm.

Located in Waverly's West Light Plant, the Enterprise unit more than doubles the previous kw capacity of this facility, and is also generating more power than the city's East Plant with its 4 engines and 3 hydro units.

As with other custom-crafted models in the complete Enterprise line, this 110-ton engine offers many advantages which cut installation, operating and maintenance costs. Less bulk makes installation easier, servicing simpler and more economical. Maintenance requires no major disassembly because all working parts are readily accessible from the outside.

Investigate this "workhorse" source of dependable, low-cost power—the result of nearly four decades of experience, research and development. Write for Bulletin ES-B69, or ask for a representative to call.



With its new 4 cycle, 17" bore x 21" stroke RV-16 *Enterprise*, the Waverly installation has become known as a "showplace among the power plants of the nation."

ENTERPRISE
engine & machinery co.

DEPENDABLE ENGINES

Subsidiary of General Metals Corporation
18th and Florida Streets, San Francisco 10, California

Boston • Chicago • Des Moines • Jacksonville • Kansas City • Los Angeles • New Orleans
New York • Pittsburgh • San Diego • Seattle • St. Louis • Washington, D. C.

9:15 Shooting Cationic Bitumuls

9:20 Cover-stone is spread

9:25 Tandem rolling of cover-stone

"Flusher" test proves...

CATIONIC BITUMULS

IS YOUR BEST INSURANCE AGAINST SUDDEN SHOWERS

9:30 Flushing the finished Surface Treatment

Recently, we announced the availability of a new product:

CATIONIC BITUMULS.

We talked of adaptability to "difficult" aggregate; rapid set; resistance to early rains.

Since then, we have put this new material to many rigorous tests on actual jobs all over the country. We needed rain to show, dramatically, how Cationic Bitumuls protected new paving and surfacing against sudden showers. When we couldn't get rain we made it!

CONSTRUCTION DATA:

On a very revealing test in Long Beach, California, for instance, we used a street-flusher to simulate heavy rain. On 1,100 ft. of 72-ft. wide street pavement, various sections were blocked out to provide "control" testing. These sections were "shot" with both regular grades and Cationic Bitumuls; were covered and rolled in rapid sequence. **Within 15 minutes after application of the binder,** the street flusher (as shown above) "watered" these sections with the equivalent of a heavy rain. The sections were then opened to traffic.

RESULTS:

The sections sealed with Cationic Bitumuls retained practically all cover-stone. As expected, the regular grade of emulsified asphalt "washed-out" under this severe test and most of the stone was lost under early traffic.

Many years of research, testing and development work have gone into the production of Cationic Bitumuls. This product offers two distinct advantages to the road building and pavement maintenance industries: it coats almost **all** aggregates, even those usually regarded as "difficult"; and it extends the normal working season.

It will pay you to get all the facts on NEW Cationic Bitumuls. Just call our nearest office.

American Bitumuls & Asphalt Company

320 MARKET, SAN FRANCISCO 20, CALIF.
Perth Amboy, N. J.
Baltimore 2, Md.
Cincinnati 38, Ohio
Atlanta 8, Ga.
Mobile, Ala.
St. Louis 17, Mo.
Tucson, Ariz.
Portland 8, Ore.
Oakland 1, Calif.
Inglewood, Calif.
San Juan 23, P. R.

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties

Ready-Mix plant owner says

"I Looked at Other Loaders . . . but I Liked Tractomotive best"

When it comes to buying equipment, careful consideration is given to its purchase by E. C. Voit & Sons, Inc., owner of a Ready-Mix concrete plant in Madison, Wis.

"I looked at other loaders," said Mr. Voit, "but I liked this 2-yd TL-20 TRACTOLOADER* best." He added that he also likes the Tractomotive dealer — "our relations have been mighty happy over the years."

A good product backed by a good dealer — that's the combination Tractomotive offers you—no matter where you are located. Allis-Chalmers construction machinery dealers throughout the world handle Tractomotive loaders and other Tractomotive products exclusively.

Like Mr. Voit, why not see what a modern TRACTOLOADER will do before *you* decide. On the TL-20 and TL-16, the exclusive *one-lever* control of speed and direction alone will add many extra yards to your daily production. See your nearby Allis-Chalmers dealer soon . . . he has a full line of TRACTOLOADERS to show you — two- and four-wheel drive.

*TRACTOLOADER is a registered Tractomotive trademark.

ALL TRACTOMOTIVE EQUIPMENT IS SOLD AND SERVICED BY YOUR ALLIS-CHALMERS DEALER

TRACTO—
a sure sign
of modern design

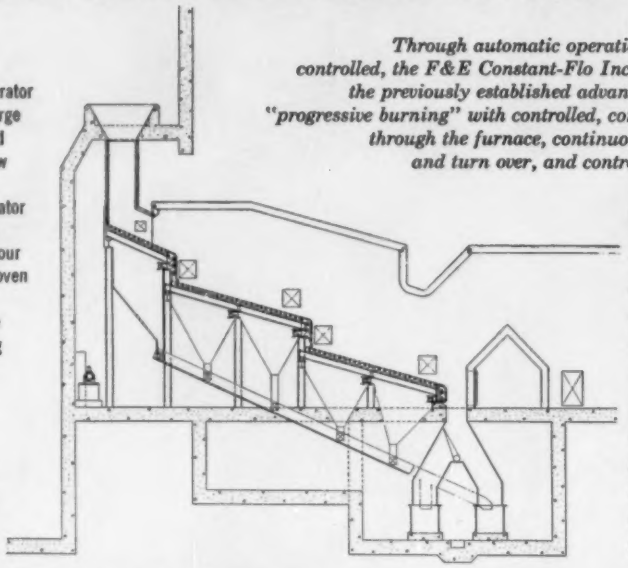
TRACTOMOTIVE
TRACTOMOTIVE CORPORATION • DEERFIELD, ILLINOIS

TRACTOLOADERS • TRACTOSHOVELS • TRACTORIPPERS • TRACTOHOES • TRACTOSIDEBOOMS

F&E Constant-Flo Incinerator Stoker

Companion Stoker—F&E Standard Incinerator Stoker

In addition to the F&E Standard Incinerator Stoker for batch charge plants, the Flynn and Emrich Company now offers the F&E Constant-Flo Incinerator Stoker . . . using the latest application of our already tried and proven F&E Incinerator Stokers . . . for those municipalities calling for "Constant-Flo" operation.



Through automatic operation, electronically controlled, the F&E Constant-Flo Incinerator Stoker combines the previously established advantages of F&E "progressive burning" with controlled, constant flow of material through the furnace, continuous agitation, break up and turn over, and controlled residue disposal.

RESULTS—

1. *Reduction of plant operating personnel to absolute minimum,*
2. *Higher rates of destruction with less air pollution,*
3. *Controlled furnace temperatures with much lower furnace maintenance than previously attainable, and*
4. *Refuse reduced more thoroughly at lower cost.*

FLYNN & EMRICH CO. 301 North Holliday Street, Baltimore 2, Md.

ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

USED AS SNOW PLOW IN WINTER

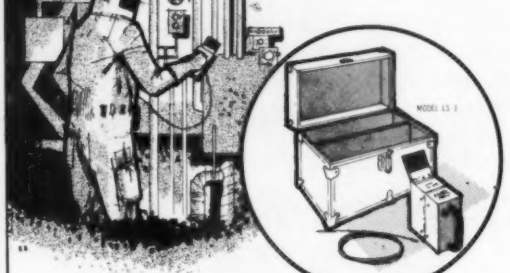
Many cities use their Etnyre Street Flushers all year 'round—in winter plowing snow; in summer cleaning streets. Knife-edged, high pressure streams of water clean streets up to 42 feet wide — thoroughly — even under parked cars. Special attachment in front of radiator grille adapts Flusher to winter snow removal. You can save time and money with an Etnyre — see your nearby Etnyre dealer or write us today.

E. D. ETNYRE & CO., Oregon, Illinois

DESTINATION: TOMORROW!

INSPECTION OF THE ATOMIC REACTORS OF TOMORROW WILL BE MADE EASIER BY T&R PORTABLE DETECTORS.

THE MODEL LS/1 IS A HOLIDAY DETECTOR DESIGNED PRIMARILY FOR THE ELECTRICAL INSPECTION OF PIPE OR METAL SURFACES WRAPPED WITH PROTECTIVE TAPES SUCH AS POLYVINYL AND POLYETHYLENE TYPES OF MATERIALS.
THIS UNIT MAKES POSSIBLE DEPENDABLE AND ECONOMICAL INSPECTION OF WRAPPED FIELD JOINTS, SURFACE TEES, VALVES AND FITTINGS.



DISTRIBUTORS: Crutcher-Rolfs-Cummings Inc., Houston, Texas • Remco Manufacturing Co., Inc., Tulsa, Oklahoma • Canadian Equipment Sales & Service Ltd., Edmonton, Alberta, Canada • Bob Herrick, Rentals & Service, Harrisburg, Penna. • Falcon Line Products Corp., Elizabeth, N. J. • Export Agents . . . Frazar & Hansen Ltd., San Francisco, Calif.

Electronic Detectors for every Industry

T&R TINKER & RASOR

417 AGOSTINO ROAD, P. O. BOX 281, SAN GABRIEL CALIFORNIA

Key to community prosperity—*a modern water system!*

Busy shoppers on Wichita's Broadway and Douglas Avenue

From WICHITA, KANSAS—Mayor James L. Gardner tells how good water contributes to business activity.

"Every year—we actively go after new business . . . seek new firms to locate in Wichita to create job and business opportunities for our citizens. These new firms need water—and never fail to ask about our water system . . . which is one of the most efficient systems anywhere in the world. Part of its efficiency is made possible by Johns-Manville Transite Pipe which we have been using for many years."

Your prosperity, welfare and safety depend on good water . . . and plenty of it. Now's the time to support your community water upgrading program and water department officials.

How Transite Pipe helps keep water costs low . . . employment high . . . business good!

Visit Wichita and you see an active city. A giant farm market . . . a world leader in the oil and meat packing industries . . . an area unsurpassed in aircraft manufacturing.

Throughout the city, homeowners and businessmen give many reasons for this prosperity. One important reason is the city's water system! One of the nation's most modern, it supplies Wichita with 30 million gallons of fresh, crystal-clear water every day.

Like so many leading communities, Wichita has been served for many years by Johns-Manville Transite Water Pipe.

Made of asbestos-cement, Transite cannot rust . . . preserves water purity and clarity from treatment plant to home and industry. Transite also saves tax dollars for other uses. It is installed quickly, economically. Its smooth interior keeps pumping costs low. And it is noted for its unusually long life. The result is greater assurance of pure water . . . in full volume . . . at minimum cost to homeowner and business firm.

For information on how Transite Water Pipe (and Transite Sewer Pipe, too) can serve your city, write Johns-Manville, Dept. AC, Box 14, New York 16, N. Y.

JOHNS-MANVILLE

JOHNS-MANVILLE JM PRODUCTS

TRUCO® DOES IT AGAIN!!! Standard Truco Portable Diamond Drilling Machine plus 15′ pipe becomes a "special" and handles big sewer job easily

JOB: Drill concrete sewer walls for test cores 6″ dia. x 24″ to 30″ deep to be used in determining the thickness of the concrete. Sewer diameter was 11′ to 15′ and cores were taken every 1000 feet for a total of 44 cores.

JOB SITE: McNichols Road Relief Sewer, Detroit, Michigan.

DRILLING CONTRACTOR: Fattore Garavaglia Company, Detroit.

TOOLS: Truco Heavy Duty Model E Portable Drilling Machine with 4½ H.P. air motor at 300 rpm. Truco Swivel Diamond Bit 6¼″ O.D.

OPERATION: The large diameter of the sewer necessitated the Truco machine being mounted on a 4″ O.D. sectional pipe which acted as a column and enabled the machine to be braced against the opposite side of the sewer and thus provide rigidity for operation and leverage for drilling. Cores were taken at various angles and the equipment was readily moved from one location to another. No problems were encountered and full size, complete cores were easily obtained. Drilling rate was under one inch per minute. All 44 cores were obtained with a single Truco diamond bit.

Truco equipment is constantly delivering spectacular proof of superiority over other drilling equipment and often saves its cost in a single job. Truco equipment drills at any angle "Around the Clock." Write for literature and name of your distributor.

TRUCO MASONRY DRILLING DIVISION
WHEEL TRUEING TOOL CO.
73-3200 W. Davison Avenue
Detroit 38, Michigan

KURB DRESSER

EDGES 80 MILES OF TURF PER DAY!

A park department official recently testified that one "Kurb-Dresser" does the work of 12 men using conventional equipment — freeing these men for other maintenance work. This rugged, tractor-drawn industrial edger can easily slice through a 4″ soil build-up, or as deftly trim random grass runners, overlying curbs, sidewalks, highways, driveways, airstrips, etc. — at speeds up to 15 miles per hour.

"Kurb-Dresser" fits any three-point-hitch tractor. Blade automatically holds steady course even if tractor path deviates as much as 16 inches. Either flush-cuts or simultaneously cuts-and-troughs, on dry or wet turf. Operates with or against traffic; from street or turf areas. Non-spinning cutting blade safeguards operator and bystanders against danger from flying debris!

Whether you edge weekly, or "clean-up" only once a year, "Kurb-Dresser" pays for itself again and again. Sold nationally through leading turf-equipment distributors. Full details sent, or demonstration on request.

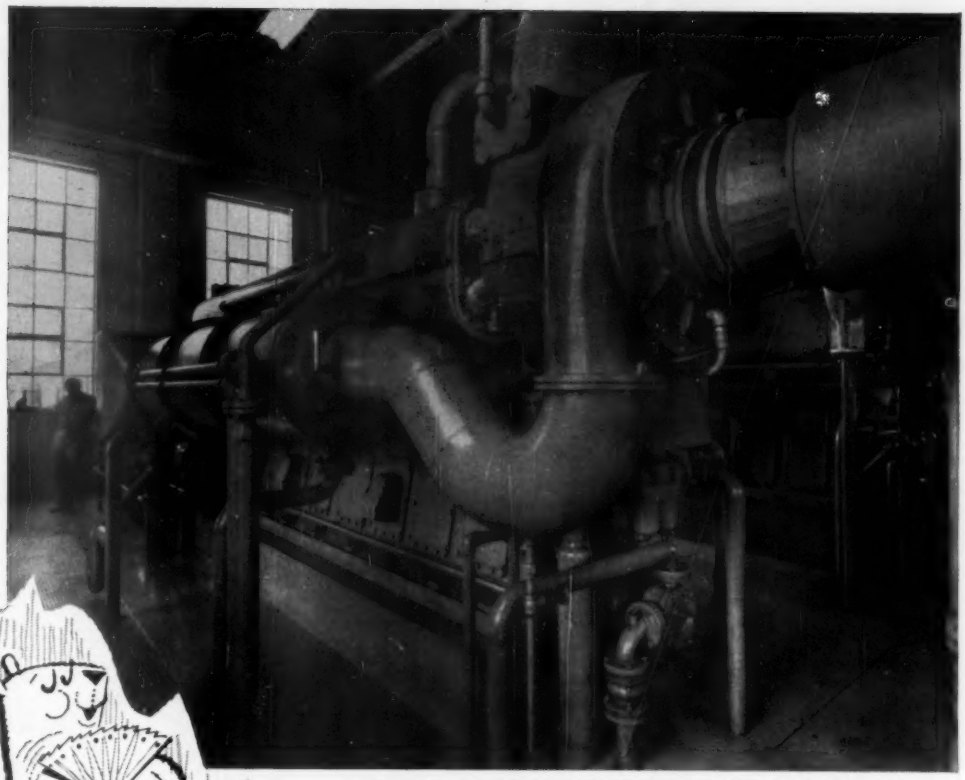
FREE
DEMONSTRATION,
LITERATURE,
SPECIFICATIONS,
QUOTATIONS

☐ Send detailed "Kurb-Dresser" information.
☐ Arrange a convenient demonstration.

_____ is the best time for me.

Name _____
Title _____
Firm _____
Address _____ City & State _____

KD MANUFACTURING COMPANY
CLEBURNE TEXAS
©1959



Cooper-Bessemer Tri-Fuel Turbocharged Type JS-8 Engine at Hominy, Oklahoma. Operates as supercharged, spark-ignited gas engine ...gas-diesel...or full diesel. Rated 1425 hp at 450 rpm.

Cooper-Bessemer engine chills its combustion air... shrinks fuel costs

The City of Hominy, Oklahoma, is piling up cool savings by boosting fuel efficiency with the Cooper-Bessemer 1425 hp engine shown above. Equipped with a combustion air cooling system, to pack more air . . . more oxygen . . . into the engine, this JS8 engine is setting an exceptional record of fuel economy of 6200 Btu/bhp/hr.

When planning expansion for its power plant, it is understandable why Hominy turned to Cooper-Bessemer for dependable, low-cost performance. A previous JS engine of 986 hp rating ran 60,000 trouble-free hours before its first overhaul.

To make sure that you get the latest power advancements for your expansion or modernization, consult Cooper-Bessemer when you start to plan. Contact the nearest office for complete information.

BRANCH OFFICES: Grove City • New York • Chicago • Washington • San Francisco • Los Angeles • Houston • Dallas • Odessa • Pampa • Greggton • Seattle • Tulsa • St. Louis • Kansas City • Minneapolis • New Orleans • Shreveport.

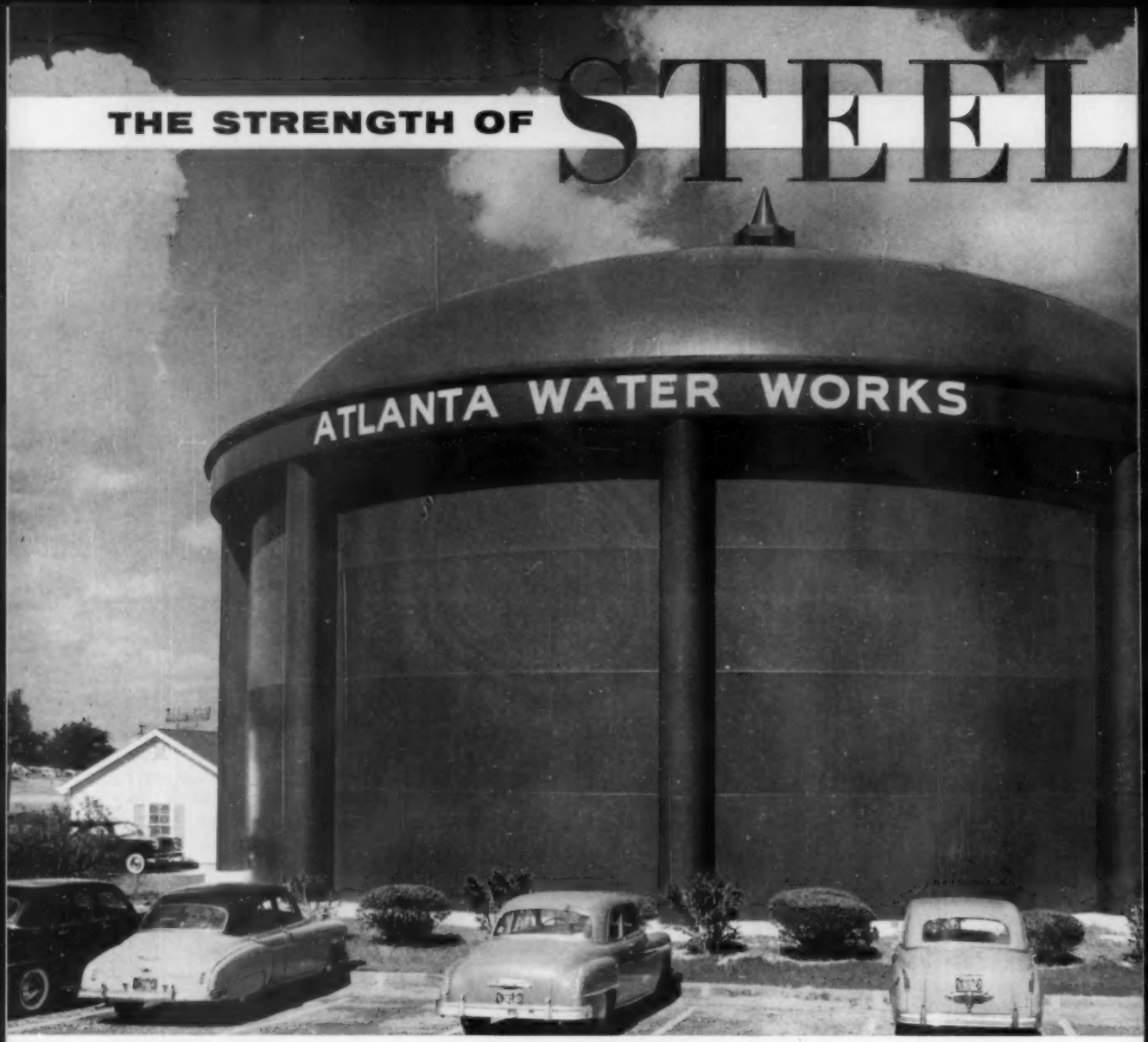
SUBSIDIARIES: Cooper-Bessemer of Canada, Ltd. . . . Edmonton • Calgary • Toronto • Halifax Cooper-Bessemer International Corporation . . . New York • Caracas • Mexico City.

Cooper Bessemer

GENERAL OFFICES: MOUNT VERNON, OHIO

ENGINES: GAS - DIESEL - GAS-DIESEL
COMPRESSORS: RECIPROCATING AND CENTRIFUGAL, ENGINE OR MOTOR DRIVEN

THE STRENGTH OF STEEL



CB&I-built structures store 15,000,000 gallons

Providing first class water service to a city which triples in land area, through annexation, is not easy—but it can be done. The Atlanta, Georgia, Water Works did it with *two* remarkably engineered building programs, carried on simultaneously.

Atlanta kept its sleeves rolled up for five years to meet the two-way challenge: (1) expansion of the distribution system and (2) capital improvements to the existing system.

Two 2,000,000-gallon CB&I-built radial cone-bottom tanks were erected first to overcome the most pressing problem: *low pressure during periods of peak consumption.* Later, three CB&I-built ornamental reservoirs rose as milestones in the ambitious, fast-moving program. Upon completion of the program, CB&I-built structures were providing Atlanta with 15,000,000 gallons of storage.

Today, these steel reservoirs are proud landmarks of Atlanta's municipal achievement. Pleasing in appearance, durable and "bottle-tight", they offer sound testimony as to why *more water is stored in steel* than any other type of material.

Write your nearest CB&I office for the bulletin: *CB&I Standpipes and Reservoirs.*

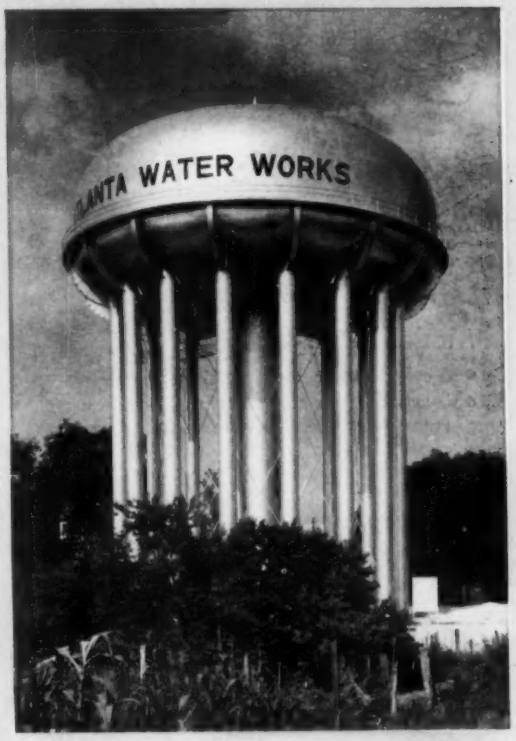
M56CB

Chicago Bridge & Iron Company

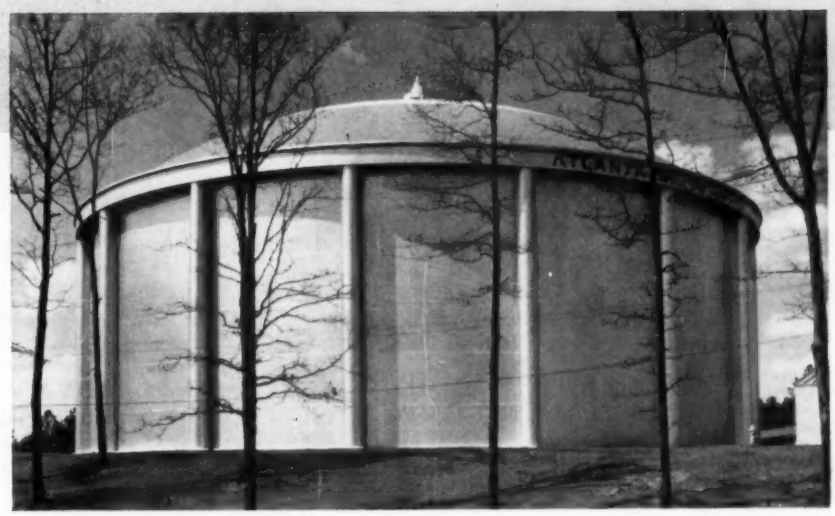
WATERSPHERES® • WATERSPHEROIDS® • ELLIPSOIDAL BOTTOM TANKS • RADIAL-CONES • SPHEROIDALS • STANDPIPES • RESERVOIRS • HORTONSPHERES® FOR GAS SERVICE

LANDMARKS $75,000,000 WATER SYSTEM

2,000,000-gallon ornamental wash water reservoir is 94 ft. in diameter. A CB&I-built 4,000,000-gallon reservoir also serves the Atlanta Water Works.

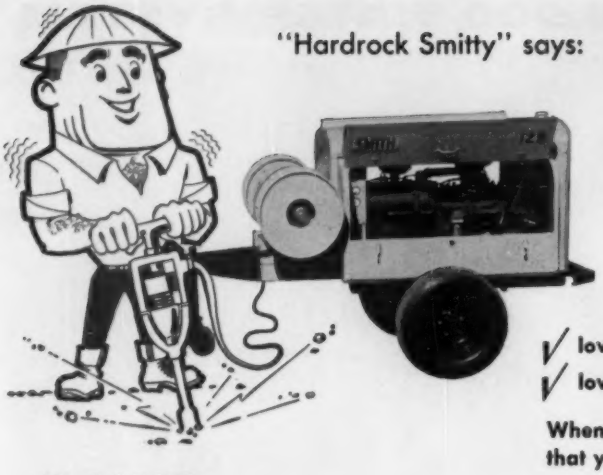


One of two CB&I 2,000,000-gallon radial cone tanks which help Atlantans save more than $1,000,000 in annual insurance premiums.



Above: This 5,000,000-gallon CB&I-built reservoir was described as "big enough to accommodate 1,000 automobiles."

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.) • New Orleans
New York • Philadelphia • Pittsburgh • Salt Lake City • San Francisco • Seattle • South Pasadena • Tulsa
Plants in: BIRMINGHAM • CHICAGO • SALT LAKE CITY • GREENVILLE, PA. • NEW CASTLE, DELAWARE
In Canada: HORTON STEEL WORKS LTD., TORONTO, ONTARIO



"Hardrock Smitty" says:

BEFORE YOU BUY ANY COMPRESSOR CHECK THE SMITH 125 FOR EFFICIENCY AND ECONOMY

Check—

- ✓ low initial cost
- ✓ low operating cost
- ✓ easy maintenance
- ✓ simple compact design
- ✓ 12 volt electrical system
- ✓ 125 cfm at 1165 RPM

When you do, you'll agree with "Hardrock Smitty" that you can't buy better than Smith.

Ask your dealer for an "on the job" demonstration.

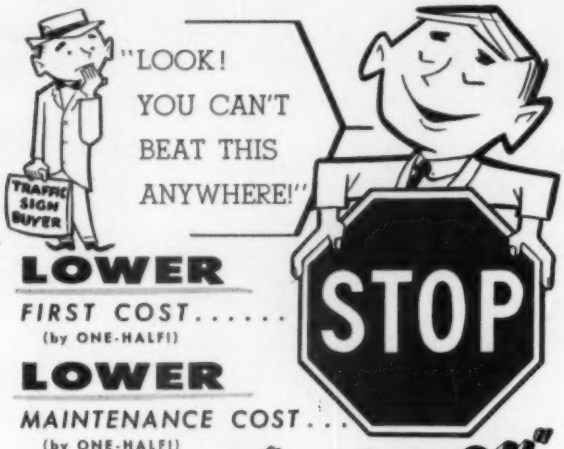
Model 125P.

- 6 cylinder Hercules Industrial engine
- 3 cylinders for compression, 3 cylinders for power. 95% of all moving parts available from your nearest industrial engine dealer.
- Operates two 85 lb. paving breakers at the same time.

Write us for complete information and the name of your nearest dealer.

SMITH
AIR COMPRESSORS

GORDON SMITH & COMPANY, INC., Bowling Green, Ky.



LOWER *FIRST COST.....* (by ONE-HALF!)

LOWER *MAINTENANCE COST...* (by ONE-HALF!)

'EZ-ON' Traffic Sign Faces are flanged to clamp right over present signs. Made in 24 and 30 in. sizes, octagon and diamond, in red and white, yellow and black. Fully reflectorized. They meet every need at HALF the price of ordinary signs!

with "EZ-ON" TRAFFIC SIGN FACES by GRACE

SEND FOR FREE BOOKLET AND PRICES!

GRACE SIGN & MFG. CO.
3601 South 2nd Street • St. Louis 18, Mo.

Name _____

Address _____

_____

WHEN YOU WANT COPIES QUICKLY -

↓ YOU
↓ GET
↓ THEM
↓ WITH Rotolite FOR MODERN COPYING

LOWEST COST MACHINE FOR MODERN COPYING

Lowest cost machine ever developed to reproduce anything printed, written, drawn or photographed on translucent material. Does same job as machines costing many times more. Hangs on wall out of way. Easy to operate.

USERS SAY

"Have been using your Rotolite machine for years . . . It produces prints that are sharp and clear with a minimum of effort. It is certainly convenient to be able to have copies ready for distribution within minutes . . ."

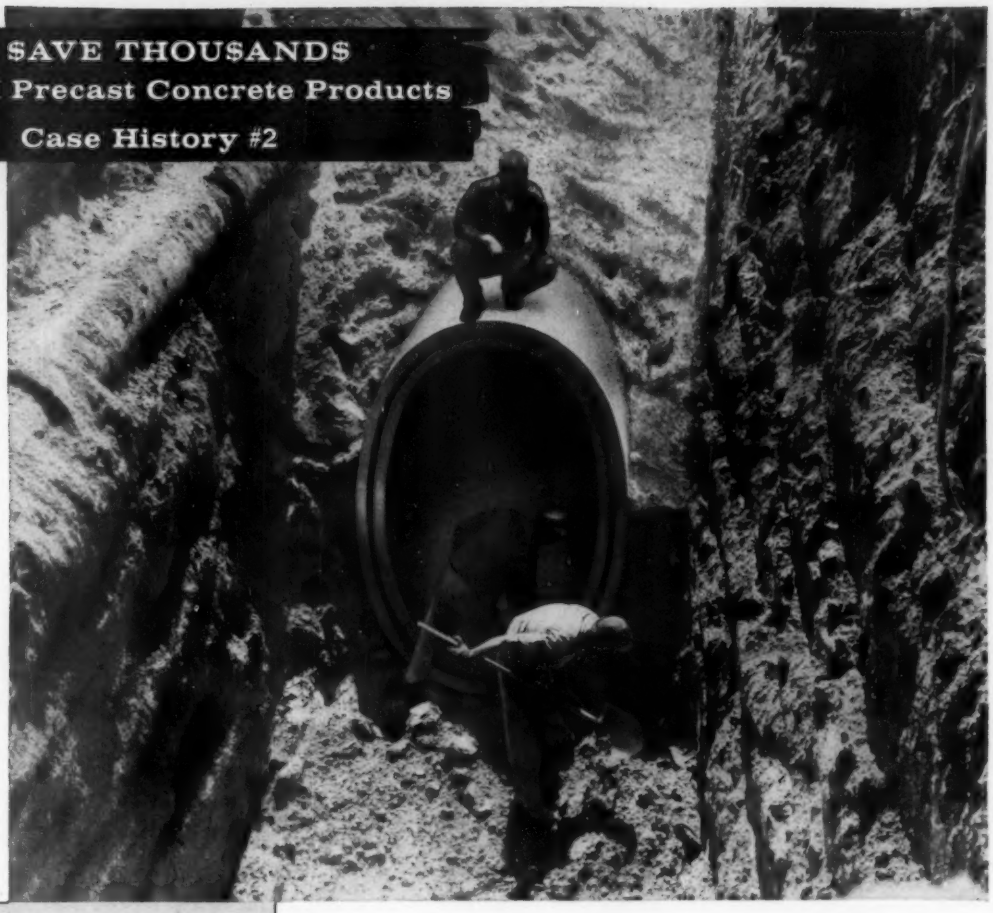
"Results are uniformly clean and legible . . . at a cost far less than that of any other reproducing machine."

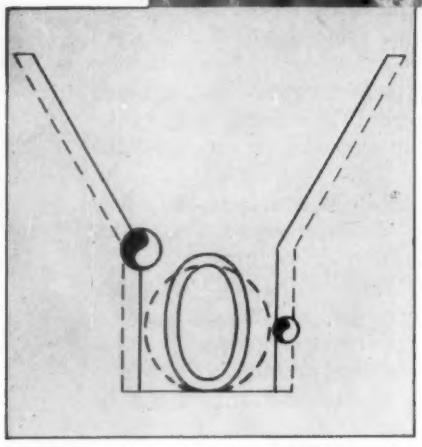
PRICES:

18" $129.50. 27" $149.50. 42" $189.50
f.o.b. Stirling, N. J.
Write for folder.

ROTOLITE SALES CORP. Stirling, N. J.

INCHES SAVE THOUSANDS
with A-M Precast Concrete Products
Case History #2





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FEBRUARY 1959 The American City

Big Pipe Job Completed

Southern California's Metropolitan water District doubles its supply line capacity

THE word "big" can be used to explain every phase of the $200,000,000 expansion program now being undertaken by the Metropolitan Water District of Southern California. Big money, big pipe, and big machines—all brought about by big growth. The program will double the capacity of the 240-mile Main Colorado River Aqueduct, provide a second San Diego Aqueduct, and expand treatment and distribution facilities.

Doubling the capacity of the main aqueduct requires the enlargement of two important types of operating structures. The work called for the enlargement of the five pumping plant buildings that house the pumps and motors that lift aqueduct water a total of 1617 feet in crossing mountain barriers; the installation of six additional pumps and motors in each of the five plants (bringing the total in each plant to 9); and the construction of additional delivery lines to carry acqueduct water from the pumping units in each station to a higher elevation at each of the plants. The second major enlargement project on the main aqueduct has been the construction of 47 inverted siphons along the 183 mile segment of the aqueduct. They vary in length from 73 feet to 15,400 feet, and serve to double the carrying capacity of the aqueduct's siphon section. Here, attention will be given to the siphon construction program.

Many Specials

Every large project entails certain "specials," and this project was no exception. These specials included a fabrication plant at Etiwanda to fabricate steel cylinders and reinforcing cages; two job-site plants, one near Desert Hot Springs and the other at Freda; and a new piece of equipment, called a pipemobile, to handle the pipe sections.

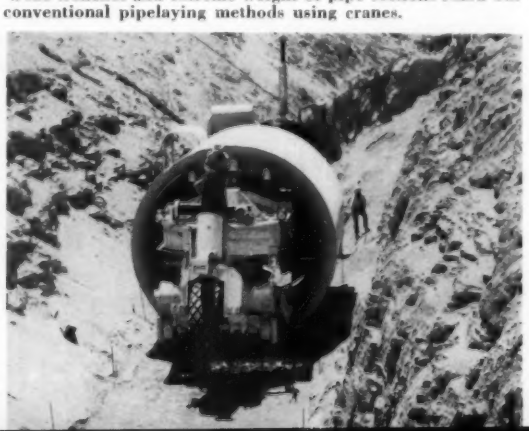
The size and remoteness of the job called for careful planning of each phase of operation and close coordination of the work. While trench excavation proceeded at one location, pipe was being unloaded at another. At still another location crews were installing pipe or backfilling completed siphons. Work progressed simultaneously at as many as 12 siphons, spaced over distances as great as 40 miles.

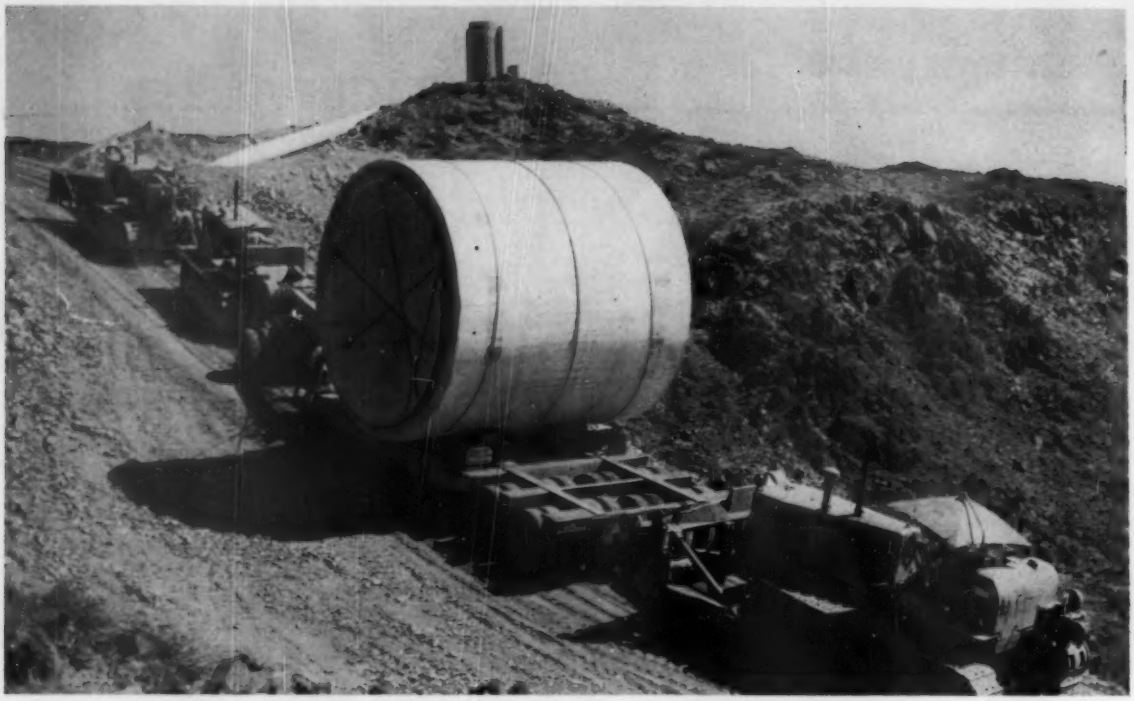
The project manager, superintend-

Final sections are installed by rolling pipe into trench and jacking it into position. Special fittings are poured in.

Transit mix trucks haul concrete from the batching plant to the casting area. Covered sections at left are being cured.

Wide trenches and extreme weight of pipe sections ruled out conventional pipelaying methods using cranes.





ents and foremen monitored the job hour by hour by means of two-way radio sets in their cars or pickup trucks.

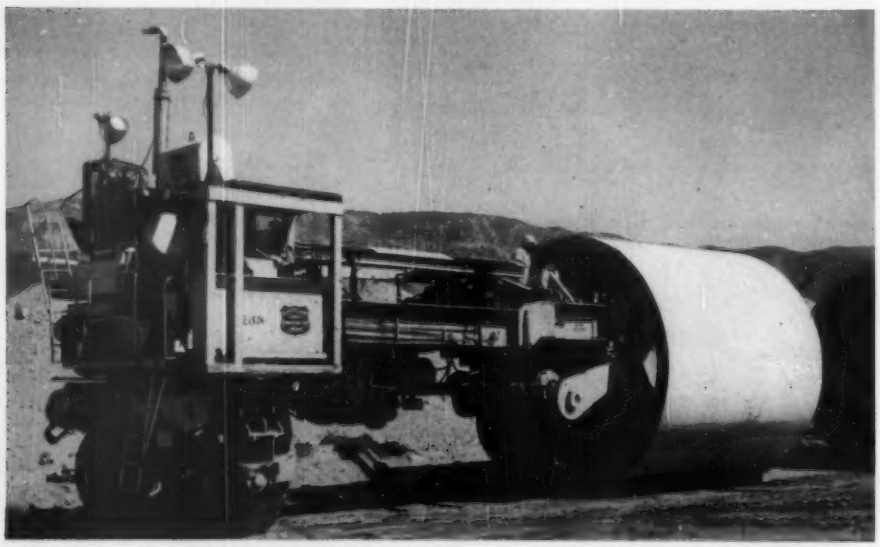
Construction Procedure

But before actual work got under way, American Pipe and Construction Co. engineers began making drawings of the 4,000 pipe sections required by the contract, showing bevels where required, angles of rotation and the exact position of each pipe section in the siphon to which it was assigned.

All of the pipe required two cages of steel reinforcement—one circular in shape, and the other elliptical, to provide for internal pressures and external loadings. As the cages were assembled they were loaded three to a truck and hauled to the desert pipe-casting plant. Seventy-five of the assemblies arrived at the casting plant each week.

Transit mix trucks hauled concrete from the batching plant to the casting area. Here cranes lifted the concrete buckets to the pouring cone on top of the forms. Six air vibrators attached to the outer form compacted the concrete as it was placed.

Each pipe section, 16 feet in length with an inside diameter of



This special pipe-handling rig carries the sections into the trench and also lays them in position.

Left:
At Eagle Mountain large tractors were used to relay pipe sections from storage yard to small clearing on top of the mountain where pipemobile takes over.

Right:
Installation site on Eagle Mountain showing original monolithically constructed siphon in foreground and at left.

either 13 feet or 13½ feet, weighed between 62 and 68 tons. After casting, each section was placed under cover and steam-cured for 36 hours at temperatures exceeding 100° F. This was followed by seven days of water curing.

Two sideboom tractors carried the sections to the storage area and also tipped them on their sides to facilitate loading.

Ninety-nine-foot-long trucks, equipped with 42 tires to help distribute the load, transported the pipe sections to the installation sites. The truck-trailer units were equipped with winches to make the units self-loading and unloading. About 180 miles of roads had to be built or reconstructed, the majority of them through rough and mountainous desert terrain, to reach the remote siphon locations.

The wide trenches, weight of pipe sections and specifications requirements ruled out conventional pipelaying methods. The new siphons in many cases paralleled the existing ones by only a few yards and loads of any sort were prohibited over the original line. Development of a pipemobile, capable of picking up a pipe section, carrying it down into the trench and actually installing it, solved this problem.

The 80-ton machine is powered by a 225-hp diesel engine driving a 250-kva DC generator. Fifty-horsepower electric motors connected to each set of wheels through a gear reducer and chain drive provide the motive power. Maximum speed is about 2½ mph. Two men operate the rig—the main operator at the rear and one on the front to steer. An intercom system facilitates operation.

The machine approaches a pipe section running on its double front wheels, until its nose wheel enters the pipe. The single wheel is then lowered and the double wheels retracted to allow the machine to move through the pipe. At the other end the double wheels are again lowered to allow the single wheel to be lowered to the ground. The machine again moves forward until the double wheels can be dropped to the ground.

Vertical hydraulic lifts then raise the pipe several inches off the ground and the machine carries the pipe into the trench and places it into position. The forward end is directed inside the previously laid section, the load shifted from the double wheels to the single wheel and the pipe canted from side to side or raised and lowered until it is firmly locked into position. On long stretches of level trench the pipemobile laid up to 20 sections in a 10-hour working day.

The machine worked alone on grades up to 15%. Above that, it needed help from other equipment such as tractors and winches. On the very steep grades (one went up to 62%) the pipe was rolled onto rails cast in concrete and jacked into position. When laying downhill on grades in excess of 15%, the sections were anchored to concrete blocks cast in the trench bottom.

Millions Served

During initial construction of the aqueduct, between 1932 and 1941, its tunnels, canals, some short siphons and hydraulic grade line conduit were built to ultimate capacity. However, the five pumping stations and 22 miles of inverted siphon were constructed to only partial capacity. The siphons are now complete, and by the end of 1960 all pumping stations will be enlarged to ultimate capacity.

Capacity of the original siphons was figured at 802.5 cfs. The slightly larger barrels just completed give the aqueduct a total capacity of 1,800 cfs, or 1,163,000,000 gpd.

More than 6,500,000 people live in the Metropolitan Water District area, which includes 83 incorporated cities and large unincorporated areas. Some of these people are completely dependent upon the aqueduct for their water supply, and all of them for their supplemental supply.

A combination of new and remodeled facilities make the Fairfax sewage treatment plant one of the nation's most efficient.

Pure Enough for the Military

Fairfax, Va. purifies sewage under one of the nation's most exacting conditions

By GLENN W. SAUNDERS, JR.
Town Manager
Fairfax, Va.

WE INVITE you to look over the specifications required of us in the purification of our liquid wastes. How would you like to have them posted on the bulletin board of your sewage treatment plant, realizing that not only the state but Uncle Sam expects them to be met, and no nonsense?

Anyone who has had a little duty with the Army's Engineer Corps knows about Fort Belvoir, probably remembering it with some nostalgia. Fort Belvoir still is very much in business, but it draws its drinking water from Accotink Creek. We discharge our liquid-borne wastes at a point upstream. Understandably enough, when they go into the river, they must be consistently free from harmful pollution. Our new plant fits this category.

The plant was designed for an average flow of 2.0 mgd, contributed by a community that expects a population of 20,000 by 1990. The treatment process, consisting of two-stage bio-filtration, pre-aeration of raw sewage, post-aeration of the effluent from the final clarifiers and disinfection, is based on a raw sewage BOD of 300 ppm. The effluent must contain 10 ppm or less BOD. The design incorporated existing plant units wherever possible.

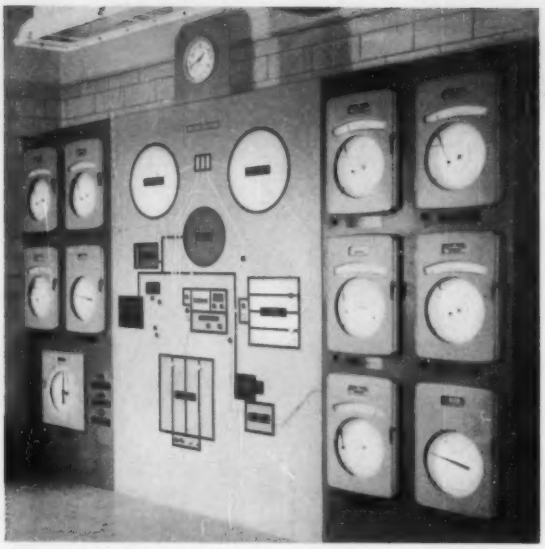
Raw sewage enters the plant through two 24-inch Chicago Pump Barminutors and twin grit removal chambers with Walker Process grit collecting mechanisms. It then flows to the wet well and is lifted to the old sedimentation tanks.

The four raw sewage pumps, all Fairbanks-Morse units with two-speed motors, have a maximum capacity of 1,100 gpm each and a low speed capacity of 400 gpm each. One unit serves as a standby. Since the plant has two sources of electrical power, our engineers considered gasoline or other type of standby power as unnecessary.

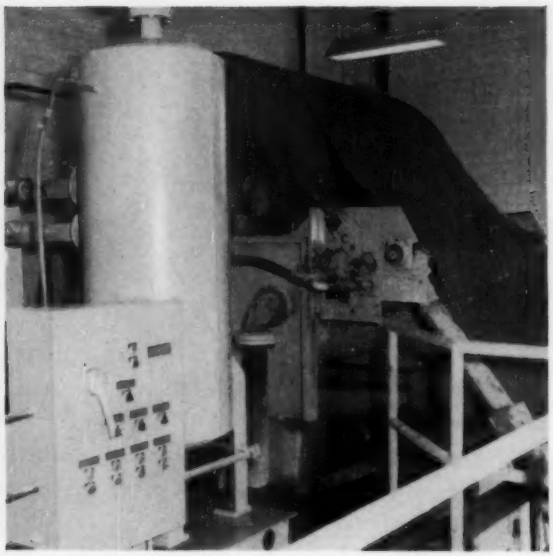
Healy-Ruff float switches control the pumps, programming the pumpage to meet the inflow rates.

Old Basins Revised

The pumps discharge through a Parshall flume into the old sedimentation tanks, now used as pre-aeration basins. They provide a detention period of 45 minutes at design capacity and a maximum air capac-



This schematic diagram and instrument panel keeps the operator posted on all plant functions.



From filter to steel container to sanitary landfill describes sludge handling. A single filter handles dewatering.

ity of 0.4 cubic feet per gallon of sewage. Two Spencer Turbine Company turbo-compressors, each rated at 800 cfm and 6.0 psi, provide the necessary air.

Flow from the pre-aeration tank enters the new rectangular primary clarifiers. The primary effluent enters twin receiving wells separated by a sluice gate permitting them to be used as one single unit or two individual units. Each contains one constant-speed and one variable-speed pump delivering to two force mains. The main receiving flow from the constant-speed pumps discharges to the side of the distribution box feeding the first-stage filter, while the main receiving flow from the variable speed pumps discharges to the side of the distribution box feeding the second-stage filter.

Recirculation

The first-stage filter effluent returns by gravity to the influent of the primary clarifiers for recirculation as mixed liquor. The second-stage filter effluent flows by gravity to the final clarifiers. The effluent from the final clarifier enters twin receiving wells containing two constant-speed pumps. These pumps return part of the flow through a venturi tube to the second-stage filter. The remaining effluent flows to the post-aeration chamber. This chamber provides a 15-minute detention period with a maximum of 0.1 cubic feet of air per gallon of sewage. The treated and post-aerated sewage then flows through a chlorination chamber, providing 30 minutes of detention time, and discharges into Accotink Creek from an 18-inch outfall sewer.

The primary clarifiers consist of four straight-line-type tanks having an over-all dimension of 83 feet x 95 feet with a 10½-foot average water depth. The four final clarifiers are of the same type with over-all dimensions of 83 feet by 75 feet and a 10½-foot average water depth.

Both filters are 100 feet in diameter and contain 3 feet of filter stone. Equipment consists of four-arm rotary distributors. The first-stage unit has a 1,360 gpm minimum

Sewage Treatment Specifications

The following specifications apply to any sewage treatment plant effluents discharging from the Towns of Fairfax and Vienna into the subject reach of Accotink Creek.

Constituent	Sampling Schedule	Concentration
1. Dissolved oxygen	Once/2 hrs. day, 7 days/week on grab samples	6.7 ppm (80% of sat. at 25° C.) average during the day, with no individual sample less than 5.9 ppm (70% of sat. at 25° C.)
2. Biochemical oxygen demand 5-day at 20° C.	Once/24 hrs. on composite samples 7 day week	10 ppm average, with not more than 5% of individual samples to exceed 15 ppm
3. Settleable solids	Same as for dissolved oxygen	Not to exceed 0.1 ml/liter
4. Suspended solids	Same as for biochemical oxygen demand	10 ppm average, with not more than 5% of individual samples to exceed 15 ppm
5. Residual chlorine	Same as for dissolved oxygen but once every hour	As required to meet MPN specifications and prevent damage to aquatic life in streams
6. Most probable number of coliform organisms	Every 4 hrs., every other day	Median of 100 per 100 ml with no greater than 10% of the samples to exceed 1,000 per 100 ml
7. pH	Same as for dissolved oxygen	Not less than 6.0 and not greater than 8.0

Daily tests conducted in this well-equipped laboratory assures Superintendent Roby that the plant is doing the job intended of it.

capacity and a 3,400 gpm maximum capacity. Minimum and maximum capacity of the second-stage filter is 2,200 gpm and 5,500 gpm, respectively. The Diffusair assembles, sludge-collecting mechanisms and rotary distributors are all Walker Process equipment. All recirculation pumps are Fairbanks-Morse units.

Two 200-pound-capacity Wallace & Tiernan chlorinators, one automatic and the other manually operated, supply the necessary chlorine.

Sludge Handling

The construction program included converting the old pump station to a sludge pumping station, laboratory, and chlorination room, using the old wet well for sludge collection. Pumping equipment includes two 4-inch Carter duplex plunger pumps, each 150 gpm in capacity, and one 50-gpm Fairbanks-Morse centrifugal pump.

The old, fixed cover digester now serves as a sludge holding tank. Sludge piping permits either direct pumping or withdrawal from the holding tank.

A 6-foot diameter by 6-foot face Eimco Rotobelt vacuum filter, located in the filtration building, dewaters the sludge. The filter cake drops into one-day capacity steel containers for transport to a sanitary landfill for disposal. The supernatant and filtrate liquor is preaerated before being returned to the raw sewage wet wells.

The work included conversion of the old filter to an emergency sludge holding basin. The drying beds were kept for emergency use.

An 8-foot x 12-foot semigraphic panel, flanked by indicating, recording and totalizing instruments showing plant influent, effluent and filter recirculation flow, pre- and post-aeration as well as supernatant air flow, gives the operator a complete picture of plant operation. Instruments also record effluent pH and sludge well depths, and signal lights indicate what equipment is in operation.

Design Features

This panel, furnished by Builders-Providence, Division of B-I-F Industries, is located in the new pumping station. Allen Bradley supplied the electrical controls and Fisher Scientific Company furnished the laboratory equipment.

Massey Engineer Consultants of Fairfax designed the plant and supervised construction. Total cost including engineering, inspection, and interest during construction, came to $994,855. The town financed the project by means of a $1,000,000 general obligation bond issue, but expects to pay off these bonds by revenues from sewer connection and service charges. The city received $77,071 in federal aid under the "Federal Grant For Sewage Treatment Works 33 U.S.C. 466."

Construction work was done under the administration of Mayor John C. Wood and the writer. William M. Zollman, Jr., is the town engineer and A. Theodore Roby serves as chemist and plant superintendent. Dedication ceremonies for the Fairfax plant were held on December 18, 1958.

Los Angeles Counts Benefits of Ban on Trash Burning

THE PROHIBITION of the use of backyard trash burners in the Los Angeles area has produced certain definite improvements in air purity, according to S. Smith Griswold, control officer of the Los Angeles County Air Pollution Control District.

The ban on these backyard burners went into effect on October 1957. Previous actions by the District had prohibited open refuse burning. Currently, the only open burning now legally possible includes fires set for agricultural purposes, for the abatement of fire hazards, and for the training of fire department personnel.

One important primary beneficial effect, Mr. Griswold believes, has been psychological. The ban effectively stopped the argument that new control measures should not be put into effect since uncontrolled refuse burning still continues.

A second benefit has been the elimination of the leading cause of localized air pollution nuisances in the county. During 1958, complaints about specific sources of air contaminants have dropped 23% over 1956, and 54% over 1957, even in the face of substantial increases of gaseous pollutant concentrations caused by increased automobile traffic.

Based on meteorological observations, 1957 should have brought more intense and severe smog conditions than the preceding year. Instead, the central Los Angeles area enjoyed a 21% improvement which cannot be accounted for by meteorological reasons and must be credited to the ban on trash burning.

A side benefit, not related to air pollution, has been the decrease in the number of fires caused by the open burning. At one time the burners accounted for 4¼% of all fires in the area. Today such fires are practically negligible. This has reduced the number of responses of fire apparatus by some 50,000 per year.

A day's supply of deodorant is poured into the pressure tank at the start of the 800-stop route.

Scent-laden spray dispenser (circle) consists of nozzle and pressure-operated valve control.

Levittown Garbage Cans "Smell Like a Lily"

Floral-scented sanitizing spray is received enthusiastically during month-long test

ONE unit of a 15-truck fleet has been equipped with a lavender-scented spray for garbage cans by an enterprising Long Island, N. Y. collection contractor. During a month-long experiment, the truck served nearly every route in the 23,000-family collection system.

Reactions by homeowners were so enthusiastic that the entire fleet will be equipped with scented service by early spring, 1960.

Anthony V. Montesano, head of the East Meadow Sanitation Service, Inc., East Meadow, N. Y., had used a pine-scented spray for some time to deodorize and sanitize the company's 15 Gar Wood Load-Packer bodies at the end of each run. The practice was highly successful, and he decided to find some method of passing it on to his customers as an added service.

One-Truck Operation

Mr. Montesano, with his brothers Pat, Jack, and Vincent, together with members of the firm's maintenance crew, started with a 13-gallon tank (ordinarily used for expansion or surge tanks in domestic heating systems) and devised a method of mounting it inside and at the rear of the truck body, with just enough clearance for the hopper to work. A fill collar was carried through the rear panel of the truck body.

They carried copper tubing out from the tank, along the body and extended it under the dumping rack to its midpoint. A nozzle, operated by a spring valve, was then attached so that the spray is directed downward.

To consolidate the dumping and spraying operation, the spraying had to be done while the carrier's two hands were occupied on the container. Realizing that neither hand would be free to operate the spray, the men mounted a horizontal rod with a cheek-plate welded to it. As soon as the container is dumped, the mouth is placed under the spray nozzle and the container is pressed against the cheek-plate, thus rotating the rod and operating the spray.

The tank carries enough chemical to spray at least 1,200 cans. This supply is ample for a day's run, which averages about 800 house stops per route.

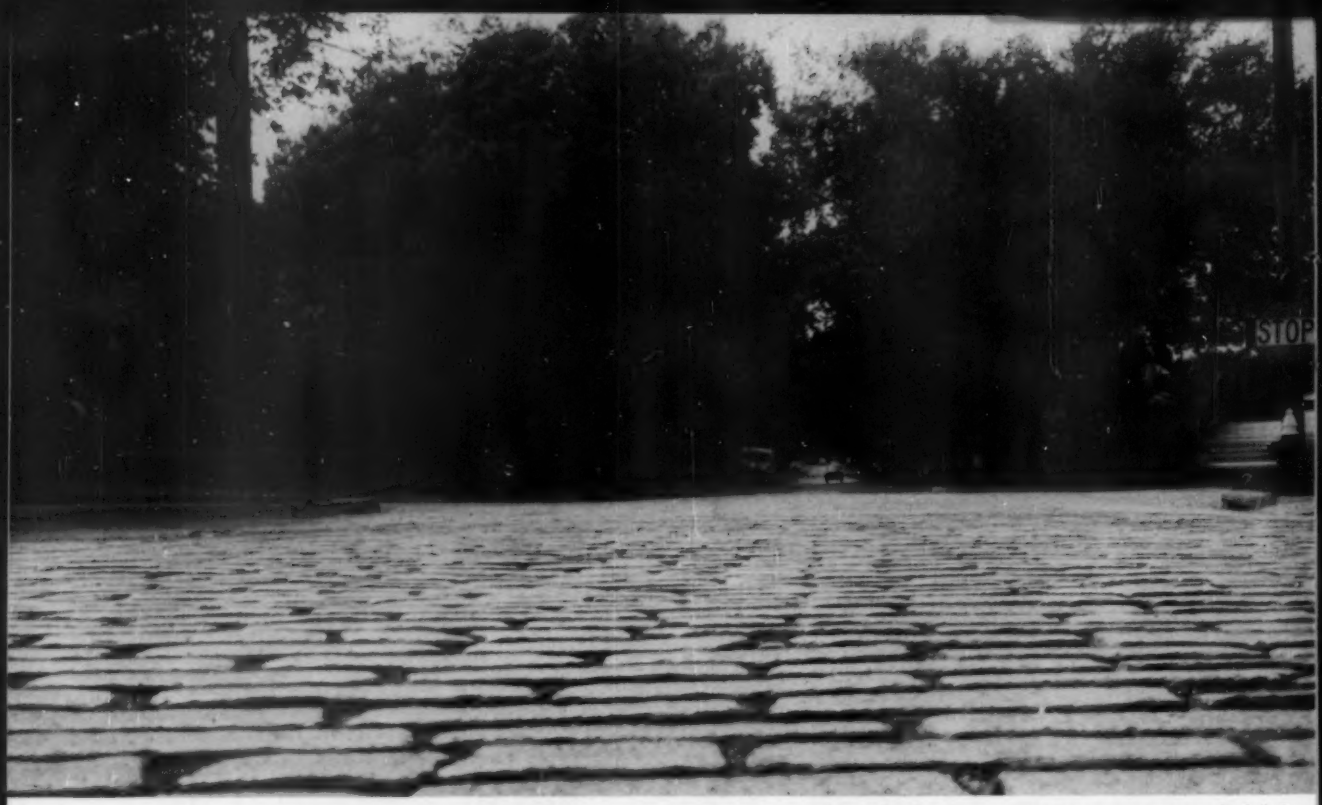
As soon as the chemical is placed in the tank, the garage compressor is used to introduce 90 psi (gage) to the vessel. This pressure is more than adequate to complete the full-day run.

During the course of daily use, it was found that the loss in time due to the spraying operation was negligible.

Mr. Montesano estimates that the installation of spraying equipment on the rest of the trucks will cost between $50 and $100 per unit, and he expects chemical costs to run around $1,000 per year. He considers the added expense worthwhile in the light of the satisfaction expressed by his subscribers.

Average cost per family (for three garbage pickups and one trash pick-up per week) amounts to about $2 per month.

Developer of the chemical is Stuart Pivar, head of the County Chemical Company of East Meadow, who says, "The principal purpose of the chemical is to kill bacteria that produce unpleasant odors and to repel flies. But if it seems advisable, the scents will be rotated to keep people from being bored. We could spray with lilies today, gladiolas tomorrow and so on."



Many brick streets, solid but rough, are scheduled

Wheel Tax Finances 11-Year Street Program

User tax gains voter support for program sparked by city's comprehensive plan

By BENNETT S. MARTIN, *Mayor, Lincoln, Nebr.*

VOTER approval of a wheel-tax signaled the start of an 11-year, $16,600,000 street improvement program, one of the biggest projects ever undertaken by Nebraska's capital city. Although backed by a 22,541-to-12,215 vote, the wheel-tax fight was not without incident; nor did our first attempt to adopt such a tax succeed.

Based on a comprehensive plan prepared by the City Engineering Department and my office and endorsed by the Planning Commission, the City Council adopted a 10-year, $15,500,000 plan containing a wheel-tax levy to help finance the program. Poor publicity and several flaws in the tax proposal led to considerable dissension among the citizenry that finally culminated in a petition and litigation voiding the proposal. Probably the greatest flaw in the original wheel-tax idea

An air view of Capitol Parkway, Lincoln's most modern expressway. The two streets (lower right) will be widened, repaved and made into one-way thoroughfares to serve as a continuation of the parkway.

for resurfacing.

Widening streets in and around the business area plus construction of new direct routes will alleviate congestion such as this.

in 1955 was that the plan did not specifically earmark wheel-tax receipts for street improvement work such as the present ordinance. There was also discord regarding the tax rate.

New Proposal

There was no question as to the need for such a tax, but rather a question of selling the program. After considerably more work, we revised the tax rate, specified that all funds collected must be used for street improvement work, and conducted a public education campaign. Fortunately we had the support of many civic organizations, the local papers, and numerous business groups. In addition, an educational campaign headed by Breta P. Dow, a Lincoln housewife, set up a speakers' bureau, made contact with civic clubs and printed pamphlets and advertisements favoring the program.

In revising the plan, we added one year and a little over $1 million to take care of several projects not included in the earlier proposal.

The program, adopted by referendum vote on November 4, 1958, included the following wheel-tax schedule, which became effective on January 1 of this year:

Annual Wheel Tax

Passenger cars	$ 4
Trucks, ½ to 1½ tons	6
Trucks, 1½ to 2½ tons	8
Trucks, 2½ to 3½ tons	14
Trucks, 4 tons and over	20
Three-wheel vehicles or less	2
Taxicabs	6
Buses	8
Ambulances, hearses	6
Trailers under ½ ton	1
Trailers over ½ ton	2
All other vehicles	4

It is legally impossible to fix permanently the amount of the tax, but the present council has no intentions of making the fees higher than those adopted.

Under present arrangements the county treasurer will collect the new levy for the city in connection with the state vehicle registration fee. For this service, the city will pay the county 1% of the amount collected. The tax year is the same as the registration year and also has the same delinquent date—February 1.

Financial Gains

There are about 50,000 licensed vehicles of all kinds within the city, and this number is growing each year. We estimate the tax will bring in about $2,860,000 over the 11-year period. Federal aid will add approximately $8.5 million more with the balance coming from state gas tax and license fee returns and some assessments as special benefits.

Had the plan not been approved, Lincoln could have lost nearly $500,000 of federal matching funds by January 1, 1959 through the lack of local funds. We would also have been forced to curtail needed repair

City crews will also participate in the program. Here they are working on a residential street scheduled for improvement.

work and much needed new construction.

The program consists of 77 street improvement projects with more than 50 miles of work scheduled for arterials and heavily traveled streets in all sections of the city. Although a good portion of the work will be made up of resurfacing projects, the program also includes several large-scale improvements designed to relieve congestion and divert traffic from other overcrowded streets. These include:

1. Widening and resurfacing of two parallel streets and changing them to one-way streets. Estimated cost—$5,100,000.

2. Establishment of a direct route from downtown to the northeast area, including construction of a viaduct and bridge. Estimated cost—$3,900,000.

3. Eliminate a bottleneck on O Street by widening and paving. Estimated cost—$2,000,000.

Many other major streets, especially those near the business district will receive similar treatment under this program.

Numerous Benefits

The major benefits to be derived from this program include increased safety and more pleasant driving conditions. The work will also reduce maintenance costs, for about 29 miles of the streets to be resurfaced are in the 40-year and older classification. Better streets will also increase the value of abutting properties.

Many city officials and employees, as well as civic-minded citizens took part in the planning of the program. Officials directly connected with the planning, as well as the implementation of the work include D. L. Erickson, director of public works; Carl Fisher, city engineer; Douglas Brogden, city planning engineer; and Willis Manchester, police traffic officer.

Now that adequate financing has been arranged, the responsible departments are already busy drawing plans, drafting specifications, awarding contracts or otherwise expediting these much needed improvements.

Municipal Alcoholic Treatment Center

MAYOR RICHARD J. DALEY of Chicago recently received an unusual testimonial of gratitude offered in behalf of 191 former patients of the municipally supported Chicago Alcoholic Treatment Center, the only such center in the United States.

The testimonial was signed by the 191 former patients, and their continued sobriety was attested to by others who were friends and members of Alcoholic Anonymous, which conducts regular meetings at the Center. The testimonial was bound in leather for permanent keeping.

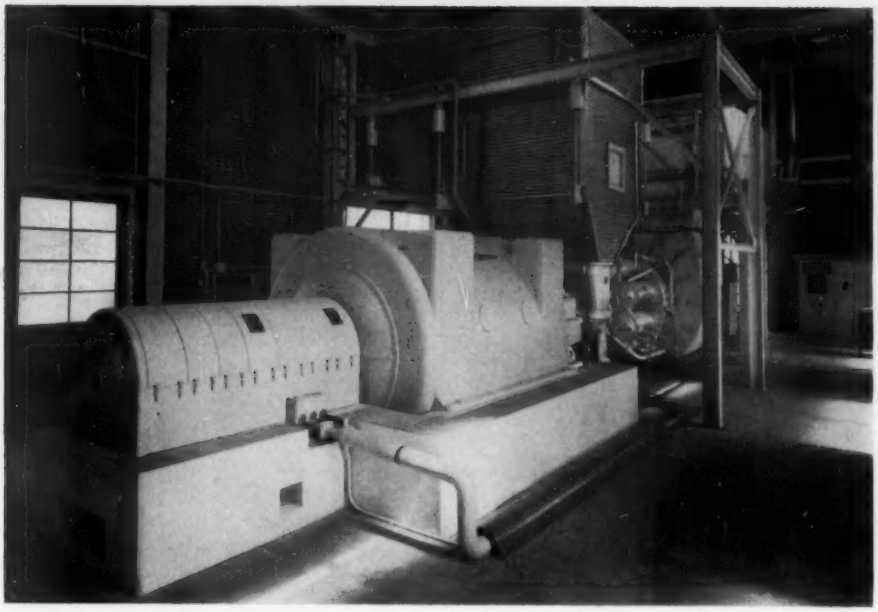
The former patient (Roy N.) who made the presentation along with four other "graduates" of the Center, told Mayor Daley:

"Two years ago, I thought that I had reached the bottom. I knew I had. And I felt that I'd never be able to get up. Then I heard about the Center, and when I went there I was accepted. I was the third patient taken in. I can only say, Thank God, Mr. Mayor, for the Center. I'm grateful that I'm able to be here today, and be sober. I am grateful that under your leadership, Chicago, our second greatest city, is the first to establish such a center for the care of alcoholics. I am grateful that through the Center I have been given a new life. I speak for all of the 191 men who have signed this testimonial to you."

Since the Center was established under Mayor Daley's leadership and began accepting its first patients on May 13, 1957, more than 500 men have been treated there, and more than the 191 signers of the testimonial have maintained sobriety since their discharge. Many families have been reunited through efforts of the Center, and it is a policy that the patients be given assistance in finding employment before they are discharged. Arthur J. Ward, formerly the Coordinator for the Mayor's Office, is director of the Center, and Miss Phyllis E. Snyder, former Navy flight nurse, serves as his assistant.

The Center started as a "pilot project" with 36 beds, but has been so successful that its capacity is being doubled this year, and extensive plans are being made for further enlargements. The City of Chicago pays the bill, and the State of Illinoise Commission on Alcoholism has granted funds to assist in research and other developments at the Center.

Mayor Daley's Commission on Rehabilitation which has general supervision of the Center, is named from among leaders of business, industry, and the press in Chicago.



The big gas turbine offers the advantage of quick starting and ease of installation.

Monroe, La. Chooses a Gas Turbine

. . . to boost power capacity of its municipal electric plant

By W. L. HOWARD
Mayor
Monroe, La.

MONROE, La. had a little extra reason to celebrate last year's July 4 weekend. Our new, 10,000-kw gas turbine started generating kilowatts for our people on schedule and at a cost about 15% less than the original estimate. More than that, the threat of a power shortage during the summer had been lifted.

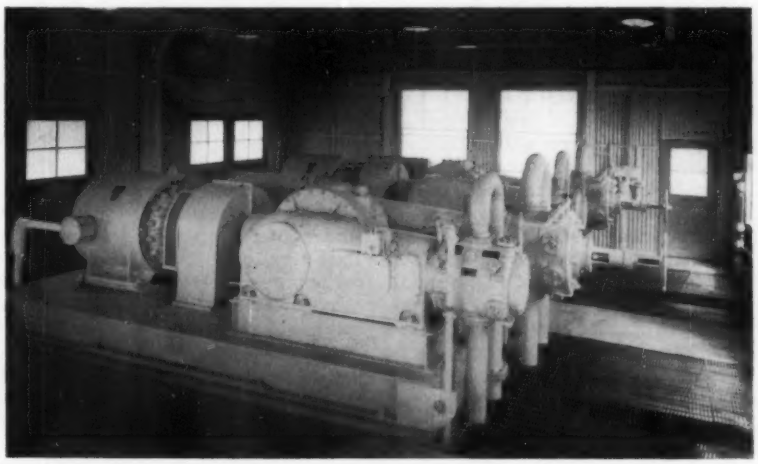
In a growing community like ours, demands for electricity have a habit of outdistancing estimates of need. We thought our last 7,500-kw generator, installed in 1955, would meet our requirements for many years. However, almost as soon as it began operating, the people of Monroe, like those of so many other cities, discovered the comforts of air conditioning. These units blossomed out all over town and increased the demand for electricity in the summer of 1955 to a peak of 25,300 kw.

We suspected that our electric utility was again headed into the overload zone if we didn't take action. Consequently we retained the engineering consultants, Ford, Bacon & Davis, Inc., New York City, to help us head off this difficulty. This firm emphatically echoed our suspicions.

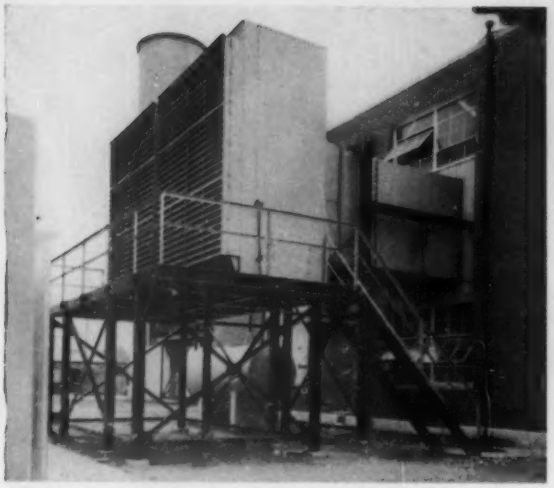
With installed capacity of 34,500 kw, our "firm capability"—(capacity minus the largest unit)—was 27,000 kw, or, as the engineers put it, "less than the peak load of 29,800, which occurred during the summer of 1956 and considerably lower than the load expected in 1957 of 33,000 kw." That meant, of course, that at least some customers would have no power should any generator have to be taken out of service during peak hours.

Fortunately, no such situation developed prior to the improvement. But demand did hit 30,500 kw during the summer of 1957.

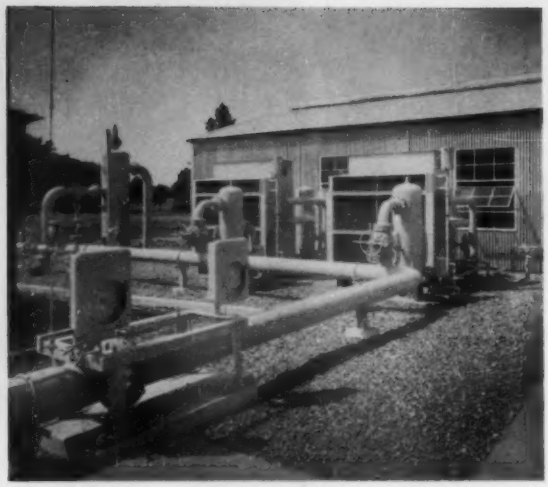
On July 30, 1957, Monroe voters went to the polls in a special elec-



These compressors feed the gas to the turbine.



This large Continental air filter unit provides clean air for the new gas turbine.



American Meter, orifice-type measuring equipment and recording thermometers measure the gas going to the turbine.

tion and authorized a $4,500,000 bond issue. Some $3,600,000 of it was allocated for expansion of the electric utility.

In connection with the bond sale, Ford, Bacon & Davis made a study of our system and issued a feasibility report. The engineers predicted that by the summer of 1959 we would be experiencing peak loads of close to 40,900 kw, making it imperative that provision be made for still further generating capacity by that time.

With financing assured, we instructed the engineers to proceed with the construction. The principal unit is a 10,000-kw General Electric gas turbine generator.

This consists essentially of three basic components — the axial-flow compressor, the combustion section and the turbine. Atmospheric air is drawn into the compressor where it is compressed to approximately 6.5 atmospheres and then discharged to the combustion section. The compressed discharge air then mixes with the fuel and the fuel-air mixture is burned in the combustion chambers. The resulting high-temperature gas is then expanded through the two-stage turbine which drives both the axial-flow air compressor, and the load which, in this case, is the 10,000-kw generator.

The engine received fuel through two gas compressors. These are "Oil Well" model DGM-300 duplex gear-driven units consisting of a Chicago Pneumatic Tool Company Type TGR 17- x 13-inch low-stage cylinder, an 11- x 13-inch high-stage cylinder, and Oil Well Supply built-in spiral bevel reduction gear and a 300-hp 2,300-volt, 60-cycle, 3-phase Allis-Chalmers explosionproof motor. The two compressors have a capacity of 175,000 standard cubic feet per hour when operating with a suction pressure of 15 to 40 psig and a discharge pressure of 180 psig.

The gas turbine, while slightly less efficient than a steam turbine unit of the same capacity, has other important advantages. For example, you can start it in less than 15 minutes and have it ready for quickly rising peak loads. A steam unit requires several hours.

We probably will install steam generating equipment in future enlargements. The gas turbine generates excess heat that can be used to good advantage with a steam unit. The unit would produce considerable heat energy, and at first this energy would be wasted, but by utilizing the heat in the boiler of the next steam unit we would get an efficiency comparable to that of an equivalent steam turbine unit.

Cost Data

The original cost estimate of the gas turbine, with building and necessary accessories, was $2,043,000. We were most pleased to find when the project was completed that it had cost only $1,750,000, a saving of approximately 15%. The remaining portion of the $3,600,000 appropriation from the bond issue for electrical improvement is being spent on 14 miles of 13-kv circuits, three distribution substations, line extensions and conversions to 4,160, 2,400, and 120/240 volt circuits, additional transformer capacity in the overhead and underground systems, and other items.

The engineers have closely supervised our utility expansion program, rendering us a rather unusual service. At the request of the underwriters of the bond issue, the city entered into a construction trust fund agreement with the Ouachita National Bank, of Monroe. This specified that Ford, Bacon & Davis would be responsible for approving the city's drawdown of funds to meet the improvement program.

Another part of the engineer's report offered numerous suggestions for improvements in the administrative end of our utility.

Monroe, the seat of Ouachita Parish (county), is in northern Louisiana, not far from the Arkansas border. It is governed by a three-man Commission Council, headed by the mayor. Before 1957 one of the three, the Commissioner of Finance and Public Utilities, actively headed the electric utility and water works. In 1956, by action of the state legislature, a Utilities Commission was created to take over operational functions of the water and power facilities of the city.

The Utilities Commission, composed of five local businessmen appointed by the mayor, serves without pay in an advisory capacity. Actual management of the various utility properties is in the hands of the Utilities Manager by direction of the commission. Today the Commissioner of Finance and Utilities is the liaison officer between the Utilities Commission and City Council, which still controls the financing of utilities expansion.

The domed auditorium seats 1,350 people. The concrete patio, foreground, is used for outdoor dancing and roller skating.

A Fresh Idea in Civic Centers

Sanford, Fla. breaks precedent and knocks the props out from under building costs

By WARREN E. KNOWLES
City Manager
Sanford, Fla.

SANFORD, a community of 18,000 people in the heart of central Florida is meeting the challenge and problems of rapid growth by a capital improvement program initiated in July 1956. This program is being financed by revenue certificates on funds received by the city through a new electric power franchise. While a portion of the improvement program will replace and modernize fire-fighting and municipal heavy equipment, the major items are devoted to a swimming pool, a fire station, and a municipal civic center.

"Carport" Fire Station

The fire station cuts costs by using the open "carport" design for equipment storage. Constructed at a cost of $33,407.42, the fire station provides space for four pieces of fire-fighting apparatus in the 2,340 square feet of storage area, plus 2,070 square feet of living quarters. Included in the living quarters are an office, officers' quarters, shower and locker room, dormitory room, and a combined classroom-and-lounge, with a complete kitchen and eating area.

Treated laminated wood beams, manufactured by Rilco, were used for the 50-foot span of the equipment storage area. The roof utilized 4- x 6-inch fir decking.

Civic Center

The civic center, covering 1.8 acres, with a construction cost of $244,435.74, meets a long standing need of the city for an auditorium and recreation center to serve all age groups. The city's architect, John A. Burton IV centered the over-all design of the building around this recreational use without duplicating other facilities designed for athletic events.

City officials wanted a structure with visual effect and utility application that would be within the limits of a municipal budget. The result was an area of 21,270 square feet within the building itself at a construction cost of $11.45 per square foot. The construction cost is very favorable since these figures include $41,500 in air-conditioning and kitchen equipment. The design incorporated a harmonious blending of wood and glass combined with concrete blocks and reinforced concrete.

The domed auditorium, with a seating capacity of 1,400, was constructed by using Rilco laminated wood arches that gave a roof height of 32 feet and a clear span of 86 feet. One end of the arch meets the floor level at the rear of the auditorium, while the other end rests on the laminated wood proscenium arch of the stage. An interesting aspect was the use of fir 2 x 4's on edge for the roof deck necessitated by the complex curves of the dome. In addition, the auditorium dome received a white plastic reflective coating that guarantees the inside temperature to be within one degree of the outdoor shade temperature.

Aluminum Sunshades

In addition to the reflective roof coating, fixed aluminum sunshades of a honeycomb design are used to cover the glass area of the auditorium walls to increase the effi-

An open carport houses the fire trucks at this station.

ciency of the air conditioning. This design keeps the auditorium completely shaded while allowing the light to enter. At the same time, the aluminum sunshades add to the beauty of the structure, whereby the auditorium walls appear to sparkle and shine with ever changing patterns to the interest and delight of the viewer.

An ample stage at the front of the auditorium is enhanced by the beauty of the laminated wood proscenium arch that frames the stage opening. While this area has the usual stage lights, motorized main curtain, and large movie screen, two dressing rooms are located backstage. Storage of all the auditorium seating and banquet tables is under the raised stage itself. This storage is accomplished through the use of chair trucks so that various arrangements and sizes of seating accommodations are easily handled.

Adhering to the utility feature for the use of the building, a level terrazzo floor was used in the auditorium. This level floor, coupled with movable seating, allows varied use of the auditorium area such as dancing, art displays, movies, convention hall, etc. Since the rear of the auditorium can be closed off by means of folding wall partitions, a smaller area, known as the auditorium annex, may be used for the same functions or for separate functions. The annex is also available for banquets and the numerous civic club meetings because of the large, modern kitchen adjacent to this area. The completely equipped kitchen is able to service 1,000 persons easily.

At the side and in line with the back of the auditorium, a long wing swings out in a half-moon shape to provide an area for youth recreation. While completely separated from the auditorium section, this glass-front recreation wing remains an integral part of the entire structure through the use of covered walks and passageways. Folding wall partitions are again used to provide a flexible use of this area by the division of the recreation wing into separate rooms of any desired size. It is in these areas that young people are able to enjoy the lounge furniture, phonograph, television, radio, three billiard tables, and table tennis donated by interested groups and individuals, or they may meet for informal dancing to the popular tunes of the day on the jukebox. Since the front of the entire recreation wing is composed of sliding glass panels, the use of laminated wood beams and the fir roof decking provides a light, open and attractive area for recreation.

The open area encompassed by the auditorium and recreation wing has been utilized with the construction of a concrete patio. The patio provides an area for outdoor dancing as well as games and roller skating.

Sound System

Bringing the various areas together is an Executone sound system by which music or programs may originate from various locations within the building. Speakers are used for the patio so as to provide music or a public address system for all outdoor activities.

These numerous features, coupled with the fact that the building is located on the shore overlooking Lake Monroe, provide adequate reasons why the architect John Burton, the general contractor Carroll Daniel Construction, Sanford, and the people of the City of Sanford are justifiably proud of their Municipal Civic Center.

This stage uses a heavy arch on which the roof-supporting spans come to rest.

Smaller Georgia Cities Have Planning Helper

Electric power utility finds that sound municipal planning programs are good business

By FRANK HOOD
Community Development Division
Georgia Power Company
Atlanta, Ga.

THE success of community planning in Georgia's small cities does not depend on local efforts alone. Every community in this state has a big, strong partner to rely on for encouragement and guidance. This partner is one of the state's largest industries, the Georgia Power Company.

This partnership had a very modest beginning in 1944 when the company sponsored the first of a series of letter-writing contests. U. S. Government Bonds totaling $5,200 were awarded to citizens who best explained "Five Ways to Make My Community Better."

From 1947 to 1955 the power company's program highlighted the Better Home Towns contests. Towns served by the company which had less than 20,000 people were induced to compete for the distinction of showing the best record of progress. The company assisted in three ways: it sought out and organized local leadership into action committees; it provided technical aid in the form of questionnaires to reveal community needs, guidebooks for action, personal advice from the company's field representatives, and detailed plans and studies (e.g., a plan for a recreation center); and it offered the incentives of nationwide publicity, trophies, and cash awards of more than $9,000 annually.

Between the years 1944 and 1953 the company's Better Home Towns program accounted for these completed efforts:

- 2,023 paint-up, clean-up projects
- 4,085 recreational projects
- 3,681 school improvement projects
- 384 community houses constructed
- 831 park improvement projects
- 3,913 church improvement projects
- 595 hospital and clinic projects
- 24 industrial development corporations formed.

However, by 1955 the contests had begun to lose popularity, not because people were *less* interested in progress, but because they had become *more* interested. Farsighted citizens began to ask for a program that would undertake to solve problems before they became obstacles to future prosperity. They asked to plan for their town's future more thoroughly and more logically, and wanted the tools and the know-how in order to do it.

Issues Planning Manual

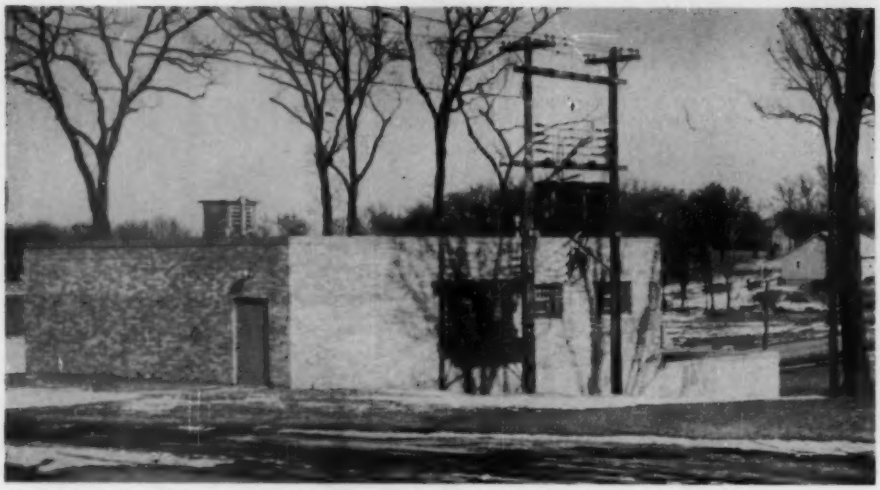
In response to this new demand, the company enlisted the help of professional city planners, sponsored statewide lectures on planning, trained its field personnel in technical matters, and published a manual of step-by-step procedure for community planning in Georgia prepared by the Graduate City Planning Program of Georgia Institute of Technology.

This last effort earned a 1957 Freedom Foundation award. Through its Community Development Division, the power company sent trained representatives throughout the state to promote official planning commissions and to help them organize and function up to the point that a professional city planner was required. They advised local officials of the small cities on problems of land use, population, streets and highways, recreation, schools, utilities, zoning, subdivision, and urban renewal. The program's effectiveness was greatly enhanced in 1957 when the State Legislature passed a General Planning and Zoning Enabling Act which granted the cities and counties broad powers to plan. Another 1957 act created a State Planning Commission empowered to give professional planning service to Georgia local governments.

The power company's most recent expansion of its program is yet another step in its maturing approach to planning. It is now promoting area-wide planning. Through the first half of 1958 the company is arranging meetings in each of the state's ten congressional districts. Company officials, members of the Georgia Municipal Association and the Georgia County Commissioners' Association, and planning commissioners and staffs will discuss the problems and needs in their district and attempt to select groups of cities and counties which should be planned on a regional basis. Steering committees will be appointed to foster this idea. The company will later hold meetings within each region to encourage teamwork among the neighboring cities and counties. These proposed regional meetings have a successful precedent to go on. On September 17, 1957 the Georgia Power Company and the Atlanta Metropolitan Planning Commission co-sponsored the North Georgia Conference for Planning and Development. Public officials from the city to federal level, and interested citizens from 18 counties in the Atlanta region met to exchange views, make alliances, discuss joint problems and opportunities, evaluate data on trends within the region, and propose future actions by the participating agencies.

The company is not doing this simply for altruistic reasons. Obviously, anything that benefits the community also helps the power company. In order to maintain or expand our future market there must be more dollars in Georgia to spend on power. This requires that the state's whole economy expand. Many new industries need to be drawn to the state. New industries would be reluctant to locate in run-down, backward-looking, unplanned communities.

A second benefit is good will, which is, of course, an asset to any business. The Georgia Power Company does not want to be mistakenly viewed as a cold, impersonal corporation. It is the desire of the company to be "a citizen wherever it serves." The Community Development Division Program is concrete evidence of this desire.



The plant has been built to a neat, functional and thrifty design.

A Half-Hour Shutdown Looked Like a Disaster

. . . until Blue Earth, Minn. developed a more ample water supply

By AXEL MOLINE
Superintendent, Water Dept.
Blue Earth, Minn.

OUR troubles came to a head in 1955. That summer our people started using water faster than we could pump it even when we sharply restricted its use. A half-hour shutdown seemed like a major calamity, and we were lucky if we could start the day with our 250,000-gallon elevated tank half filled.

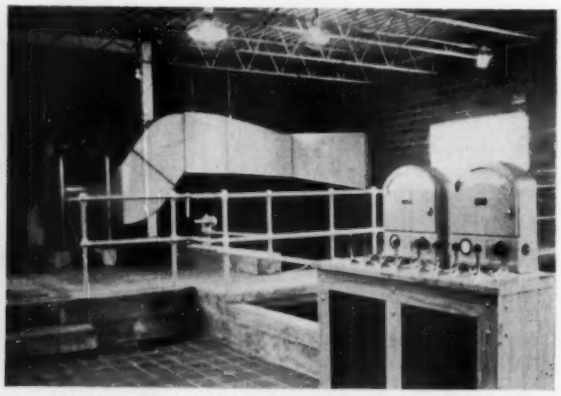
Since this couldn't be permitted to continue, the Light and Water Commission took immediate steps to provide relief. The State Board of Health recommended that we look for a new location, since our existing one was surrounded with commercial buildings and was also lacking in adequate drainage facilities.

The commission purchased a 150 x 300-foot tract of land located near the outskirts of town. Next they selected the G. M. Orr Engineering Company of Minneapolis to draw up the plans and specifications for the necessary facilities to handle both present and future needs.

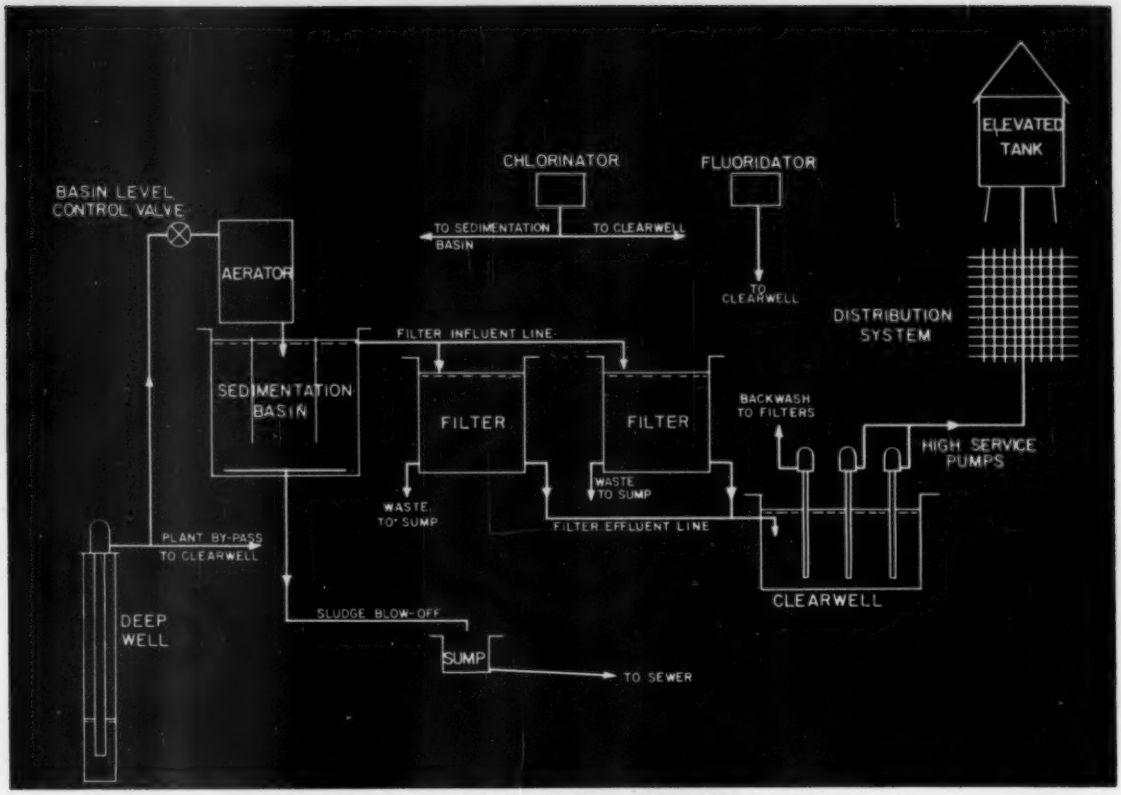
Upon the approval of plans by the State Board of Health, the city awarded a contract to Bergerson-Caswell Company of Minneapolis for the construction of a well. Preliminary tests on a 1,120-foot pilot hole gave all indications of an ample supply, so we ordered the contractor to enlarge the well to 20 inches in diameter to a depth of 995 feet and conduct a pump test. This confirmed the indications. He was able to pump 2,000 gpm with a drawdown from 15-foot static head to 76 feet.

The completed well consists of a 30-inch casing to a depth of 174 feet, and a 20-inch inner casing to a depth of 489 feet. The 20-inch open hole extends to the original 995-foot depth. In this well, we have placed a Johnston turbine pump, rated at

The lower floor of the filtration plant houses the two high service pumps and one wash water pump.



A single operating table controls both filters. The blower in the background supplies air to the aerator.



The water passes through the plant according to this flow diagram.

1,000 gpm and powered by a 40-hp U. S. Electric motor, or only half the quantity developed in the test.

While this gave us an ample quantity, its quality was none too good. It was hard, and contained troublesome amounts of iron.

Iron Removal

So in June 1956 we awarded a contract for construction of an iron-removal and filtration plant. The treatment consists of aeration, sedimentation, filtration and chlorination. The design allows for future enlargement and the addition of water softening facilities. The plant capacity to meet daily demand is based on 16 hours of operation per day at 1,000 gpm.

To remove the iron, we use an Infilco tray-type aerator designed to treat 10 gpm per square foot of tray area with forced draft based on 6 cubic feet of air per gallon of water received. This effectively oxidizes the iron in the water.

To remove the iron precipitate, the plant uses a sedimentation basin 24 feet square and 14 feet deep. This provides a detention period of one hour and features a central downflow tube with overflow into launders around the top of the basin. The basin is adequately designed to accommodate future high-rate chemical softening equipment.

To remove that portion of the iron precipitate that will not settle readily, we send the water through a pair of filters, these have been designed to receive water at the high rate of 3 gpm per square foot per minute. Each is 11½ x 15 feet in size. Underdrains consist of manifolds with laterals overlaid with filter blocks and conventional filter media.

The filtered water flows by gravity to a 60,000-gallon clearwell from which the high service and wash-water pumps take suction. An Infilco control panel governs the flow through the filters with DeZurik filter plug valves.

We have two 550-gpm high service pumps and one 3,000 gpm wash-water pump, all Johnston vertical turbine-type units. For final sterilization, we apply chlorine through a Wallace & Tiernan chlorinator rated at 40 pounds per day. We also use a Wallace & Tiernan dry chemical feeder to apply sodium fluoride to the water as a dental health measure.

The plant operates according to demand as determined by the water elevation in the elevated tank. A series of Autocon pressure detectors connected to the elevated tank and Bubbitrols in the clear-well, filters and sedimentation basin provides automatic control.

As the water level drops in the elevated tank, one or both of the high service pumps start, according to demand. As the water level in the clearwell drops, switches open that in turn cause the flow control valves from the filters to open, allowing more water to enter the clearwell. The deep-well pump in turn is controlled by the water elevation on the filters. The two chemical-feed machines operate while the deep-well pump is on.

As the filters, clearwell and elevated tank fill up, the various valves and pumps shut down leaving the plant ready for the next cycle.

The treatment process reduces the iron content from 1.3 to 0.05 ppm.

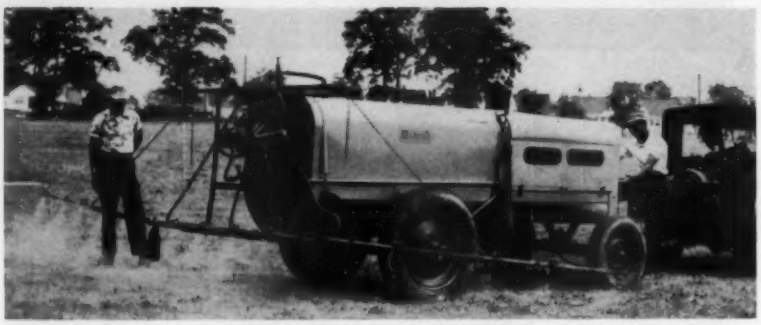
Total cost of both plant and well amounted to approximately $223,000 and was financed from funds of the Light and Water Department. Operation over the past two years has been entirely satisfactory, and we feel our facilities can adequately supply all needs for some time.

A 100-gallon Hardie sprayer with a wide boom shoots out a spray on a vacant lot early in the season, squelching growth of weeds.

How Detroit KO'd Ragweed

. . . and brought relief to hay fever sufferers

By JOHN H. RUSKIN
Associate Sanitary Engineer
Department of Health
Detroit, Mich.



In the meadows a 500-gallon sprayer applies the solution that will bring relief to hay fever sufferers.

PRIOR to 1950, Detroit had bumper crops of ragweed. Since it seasonally presented a recurring and annoying health problem to an estimated 100,000 Detroiters, Health Commissioner Joseph G. Molner, M.D. accepted the challenge of providing a solution.

The first step was a survey of ragweed infestations in the entire city. Health Department engineers and sanitarians located ragweed infestations and marked each lot on large-scale plat maps. Spray crews then used photostats of these maps for work sheets. In cooperation with the late Mayor Albert E. Cobo, the Common Council provided special appropriations enabling the Department of Parks and Recreation to convert four tree sprayers for use as weed sprayers, to supply four Jeeps to pull them, and to assign 12 trained foresters to perform the spraying operations. The spray crews used 2,4-D as the herbicide to eliminate ragweed.

To be most effective, spraying must be done before the ragweed has pollinated. However, the spraying operation should be continued because it will be beneficial even after seeds have begun to form. This technique aborts the seeds and lessens the crop of ragweed in the future. Since ragweed seed can lay dormant over several years, it will sometimes require repeated sprayings to eliminate the weed entirely. Since it is essentially a pioneer species, grasses will eventually crowd it out, but spraying accelerates the floral cycle.

Generally ragweed is found in abandoned gardens or other untended land, along sidewalks, behind billboards and in vacant tracts. Most homeowners landscape their front lawns, thereby eliminating weeds from these areas, but many neglect their back yards because they do not recognize the plant as the cause of their own or a neighbor's suffering.

Program Strategy and Evaluation

Efforts of the four spray crews were first concentrated in a fertile riverside area in the southwest part of the city. Later they worked their way around the edges of the city,

The effects of 2,4-d on common ragweed are evident—one plant was not sprayed; the center one was photographed two days after spraying while the shrivelled plant was photographed two weeks after spraying.

where most of the vacant land is located. Their work schedule took into account the prevailing winds in order to help bring as prompt relief as possible to the hay fever sufferers who lived in Detroit proper and were paying for the program.

Applications consisted of 0.1 pound acid-equivalent 2,4-D per acre, using 900 ppm or 1½ pounds of 50% acid-equivalent amine salt diluted at the ratio of 6:100. The over-all cost for labor and material, excluding supervision, ranged between $4 and $6 per acre. The total program each year has cost less than 30 cents per hay fever sufferer, many of whom have attested to the benefits derived from it.

The effectiveness of the program was gratifying. Sanitarians arranged "before and after" tests in certain areas, measuring the pollen by standard techniques recommended by the American Academy of Allergy. Analyses of several seasons' data from the 22 stations showed that the spraying had been effective in producing measurable pollen count reductions in the immediate neighborhood of infested plots. The contrasts were less dramatic at distances of a mile or more.

Certain special studies were also conducted. In one series, slides were changed hourly by US Weather Bureau technicians who assisted in the experiment. Studies showed that the pollen concentrations consistently vary in a diurnal pattern, with high counts during the late morning and low or zero counts at night. This finding contradicts prevalent theories that the pollen disperses uniformly and is transported in significant concentrations for hundreds of miles. It also explains why some resort areas are free from pollen whereas areas nearby are troublesome to hay fever sufferers. It also explains why pollen counts in the city laboratory or the allergist's clinic may disagree with the severity of symptoms experienced by residents of outlying areas. And it conclusively shows the benefits to public health resulting from successful ragweed control.

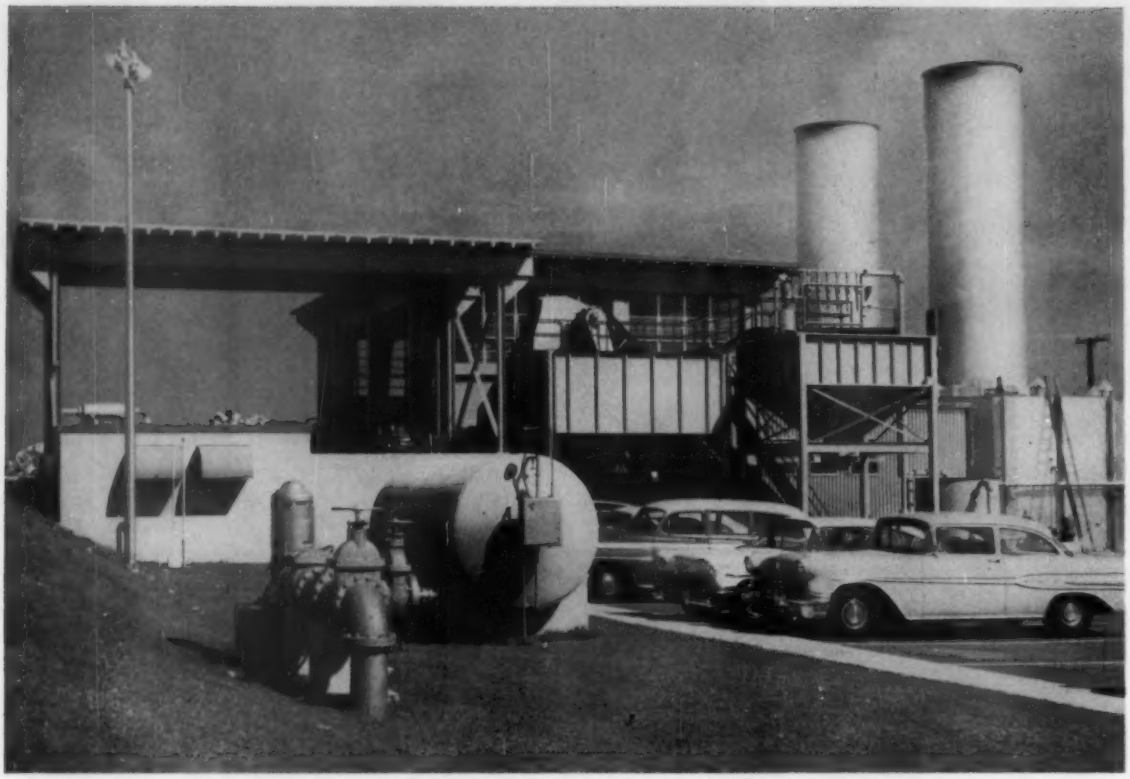
A susceptible person generally suffers only after a massive intake of pollen grains. If there were no plots of ragweed near him, he would not be exposed to massive doses. Thus, the elimination of a plot of ragweed helps to reduce the pollen concentration to which nearby persons are exposed.

Another benefit of a spray program is that roadside mowing costs are reduced. Spraying costs less per mile than mowing and saves at least one mowing operation per season. In addition to the lower costs, spraying also helps to beautify the roadsides by encouraging grasses and eliminating broadleaf weeds. As an added measure, the crews attacked poison ivy, using aminotriazole with commendable results.

Expert Guidance

Major contributions to the success of Detroit's ragweed control program were made by Alfred J. Fletcher, who gave us the benefit of his experience in developing New York City's program. Mr. Fletcher, now state sanitary engineer of New Jersey, furnished guidance in the formulation of policies and mobilization of equipment. Professors Clarence Velz, University of Michigan and Buford Grigsby, Michigan State University, also contributed generously with consultations and assistance in evaluation techniques.

Now that ragweed has been KO'd to a large extent, Detroiters have become weed-conscious and insist on the elimination of nuisance weed conditions by owners of vacant property. The program is going forward under the administration of Mayor Louis C. Miriani.



Hollywood's incinerator, with its two-story design, low stacks and open-type structure, fits local terrain and climate.

A Custom-Designed Incinerator

Functional features applicable to local conditions result in unusually low construction cost

By JOSEPH W. WATSON
City Manager
Hollywood, Fla.

WHEN the city commissioners of Hollywood, Fla. decided on incineration, they assigned the city's consulting engineers, Smith and Gillespie, of Jacksonville to design and build a plant able to burn 450 tons per 24 hours. The design was to fit the low, flat terrain; to take into account hurricane-force winds; and to be both functional and economical. Result —a two-unit plant that cost only $694,000 or about $1,540 per ton based on the 450-ton design capacity. During a series of tests conducted last August and September, the two furnaces operated at a combined capacity of 576 tons in 24 hours.

Cost-saving features include an outdoor-type plant, low stacks, and direct charging facilities. Provisions for the incorporation of special scrap-handling equipment allows for possible future income should the price of scrap rise sufficiently to make it economical to retrieve metal. The city also considered the possible future market for fly ash as an aggregate for lightweight concrete.

Floor-Stoked System

The low, flat terrain of the Southeast Florida coastal area dictated a two-story structure, enabling direct charging of refuse. Trucks enter the plant through the scale house, where the load is weighed on a Fairbanks-Morse scale and logged, and characteristics of the load relayed to charging floor attendants through a public address system. To minimize scale maintenance, all trucks must come to a full stop before proceeding on the scale. The trucks discharge their load onto the charging floor and a rubber-tired Tracto-Loader pushes it into the charging hoppers. Each hopper is

Construction of this equipment compound at the incinerator site permits the sanitation department to cover more area with the same complement of men and equipment.

equipped with an electrically operated Beaumont Birch charging gate.

A 75-ton capacity bin at the corner of the charging floor provides storage for start-up fuel or for refuse which, during peak periods, may be brought in at a rate greater than can be immediately handled on the floor. A small clamshell removes the refuse from the bin.

The rectangular furnaces are 12 feet wide by 36 feet long by 9 feet high with 12 x 13 x 8-foot combustion chamber above the rear portion. Each unit contains an American Wood and Coal Burner, Inc., oscillating-type grate 10 feet wide by 31 feet long.

The amount of excess air and rate at which the refuse travels along the grate controls furnace temperatures, normally held at 1,800° F. Underfire air, controlled in three zones, and admitted through cast iron tuyeres built into the burning area of the grates, keeps the fuel bed agitated. The balance of the air required for combustion and temperature control enters the chamber through adjustable side wall ports about 4½ feet above the grates.

The grates have been designed to receive refuse at the rate of 60 pounds per square foot per hour, the furnace and combustion chambers provide a combined volume of about 21 cubic feet per ton of rated capacity.

The expansion chambers provide two unusual features: they are wrapped around the base of the

Water sprays quench the residue as it leaves the furnace. Wiremesh conveyor belt separates ash from the cans and other debris.

A rubber-tired, front-end loader does the bulk of the charging work. Guardrails protect operating personnel.

stacks; and they contain special fly ash removal facilities.

Burning gases pass through the combustion chamber over the bridge wall into the expansion or settling chamber. The gases, upon entering the expansion chamber, are split with half being forced around each side of the stack. The gases then pass through a baffle port before entering the stack. Two continuously operated air lances in the baffle port drive out the finer particles. On the floor, special waffle blocks immersed in water trap the particles. A water spray washes the slurry into water troughs.

Ash and other inert matter leaves the stoker bed and drop to a wire-mesh conveyor belt. The ash passes through the mesh into the water trough; the remaining debris travels on the conveyor through high-pressure water sprays that cools it and washes away adhering ash. The belt, rising at an angle, moves this coarse material into an overhead storage bin. Cleats on the belt prevent roll or slipback of material, and a motor interlock stops the belt and operates an alarm if a jam occurs.

The fly ash collected in the settling chamber is washed into a trough, pumped outside and separated from the water through Dorr Clone units originally designed for ore separation, but modified for this operation.

Two 400-gpm Allis-Chalmers pumps provide water for the fly ash separation process. Two 90-foot wells, equipped with 450-gpm Fairbanks-Morse pumps, supply water used at the plant.

Fly-ash emission from the stacks is visibly low and the smoke nearly perfectly white. Specifications call for no more than five minutes of No. One Ringelman in any one operating hour. The stacks operate on natural draft, are 65 feet high and 11 feet inside diameter.

The average of three tests made on the furnace discharge gases showed a solids content of 0.062 grains per cubic foot for the north unit and 0.098 grains per cubic foot for the south unit, corrected to 12% CO_2.

Equipment

The Pyro Incinerator and Supply Corporation of Long Island City, N. Y., installed the equipment relating to combustion processes for the furnaces and stacks to meet the specific requirements of Smith and Gillespie, Engineers. All other construction was performed by Carl E. Widell and Son, of Hollywood and Merchantville, N. J., the prime contractor on the project.

For Smith and Gillespie, George Childress acted as project engineer with the basic combustion design performed by T. A. McGee, design engineer. Dan Schwartz, president and chief engineer of Pyro Incinerator and Supply Company, was in charge of the detailed design and preparation of shop drawings for the furnaces and combustion chambers.

Auxiliary equipment includes two 66,500-cfm American Blower Co. blowers, one for each unit; Minneapolis-Honeywell instruments; and Stephens-Adamson Mfg. Co. conveyors. A 280-kw, 44-volt Detroit Diesel generator unit supplies emergency power.

Maintenance Compound

For more efficient operation, Hollywood also constructed an equipment storage and maintenance compound adjacent to the incinerator. A time-and-motion study indicates an annual savings of nearly $37,000 resulting from the centralization of all Sanitation Department equipment and personnel. The cash savings alone could amortize the cost of the new compound in a little more than two years. Calculations were based on two night runs, necessary for commercial garbage and trash pickups, plus 13 normal day runs, and show an average of four miles less travel a day for each of the city's 24 mobile units in use.

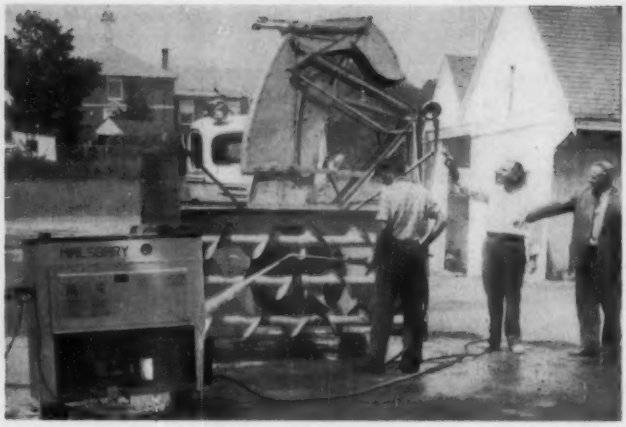
Moving operations from the city garage also showed a large savings in labor costs, calculated on the basis of an hour per day nonproductive time, lost due to the travel time of men going from the normal base of operations at the incinerator to the city garage and back for lunch. The yearly savings for a complement of 68 men total $27,729, while transportation savings amount to $9,219.

Free Service

Hollywood provides free garbage and trash service to business and residents. Garbage is picked up nightly for commercial firms and twice weekly in residential neighborhoods. Residents are encouraged to place other trash in garbage cans —grass clippings, hedge trimmings, palm fronds—with trash bundles restricted in size to four feet in length and 25 pounds in weight. Larger objects are placed for disposal on the street right-of-way, with trash crews regularly covering the city every three weeks with a Bucyrus-Erie hydrocrane accompanied by an open body dump truck.

The city financed this facility through the issuance of Utilities Tax Revenue Certificates in the amount of $2 million. The balance of this fund financed other capital improvements in the city, such as sewer main extensions, lift stations, street improvements, parking facilities, parks and playgrounds and a new police station.

Mechanic Dave Wentworth has just affixed a town decal to this new John Bean Rotomist.



One function of the maintenance shop is equipment painting. Here a Malsbary steam cleaner readies a SnoGo for a new coat of paint.

Municipal equipment repair shops provide the answer to the question of . . .

Maximum Maintenance at Minimum Cost

By RICHARD G. MARDEN
Executive Director
New Hampshire Municipal Assn.

MOST larger cities maintain their own equipment repair shops, but many smaller communities feel it is more economical to have the work done by private garages. This is not necessarily true.

In spite of an accelerated public works program and the steadily climbing cost-of-living index, the town of ***Hampton, N. H.*** chopped 30% from its budget for equipment maintenance at this year's town meeting. This reduction was made possible, not by neglecting maintenance, but by establishing its own equipment maintenance and repair shop.

John Pierce Batchelder, Hampton's hard-driving town manager, made the equipment shop one of his first projects after taking over this prosperous seaside resort community. He went to Hampton with the reputation for getting things done, and is living up to that reputation. However, Manager Batchelder also gives his Board of Selectmen the real credit for the success of this project, emphasizing that "it just wouldn't have worked without their support and help." Board members are: Lawrence C. Hackett, Donald A. Ring and Harry D. Munsey.

This was not Mr. Batchelder's first experience at setting up equipment maintenance facilities. When he was manager of a New Jersey community he slashed a $40,000 equipment maintenance outlay to $20,000 by setting up a municipally operated maintenance shop to serve all departments.

Reasoning that what worked in the Garden State would also work in the Granite State, Mr. Batchelder asked for an appropriation of $1,500 last March to equip a maintenance shop, promising to cut departmental equipment maintenance appropriations by 30% and still put the town's equipment back in A-1 condition. Actually, his estimate of a 30% saving is on the conservative side, for the records show that most town departments overspent their allowances for maintenance last year.

Deciding what equipment to buy

TOWN OF HAMPTON **No 799**

VEHICLE OPERATION RECORD

Department _____ Vehicle _____ Date _____

Project Assignment _____ Speedometer _____

SUPPLIES

Oil _____

Alcohol _____

Other _____ (Specify)

GAS REGISTER

Finish _____

Start _____

No. Gals. _____

Cost $ _____

OPERATOR'S TROUBLE REPORT

☐ Repairs or Adjustments Needed — Schedule for Lubrication and Oil Change — Yes ☐ No ☐

Instruments	☐	Engine	Hard to Start	☐	Clutch	☐	Tires ☐
Radiator	☐		Skipping	☐	Transmission	☐	Lights ☐
Brakes	☐		Idle	☐	Differential	☐	Horn, Wipers ☐
Steering	☐		Power	☐	Body & Fenders	☐	Other ☐
			Over Heating	☐	Springs	☐	(Explain on Reverse Side)

Operator's Signature _____

This Vehicle Operation Record, filled in by the equipment operator, informs the mechanic what is needed in the way of maintenance and repair.

for the shop presented problems, for at that time the town did not even own the tools to change a tire. As one town officer put it "I carried more tools in my own car than all the town departments owned." The appropriation was spent for such basic equipment as a steam cleaner, truck jack, battery charger, tachometer, timing light, drills and power tools. The total cost of this equipment came to only $1,041, leaving a balance of $458. The shop mechanic furnishes his own small tools.

Qualified Mechanic

Mr. Batchelder hired David Wentworth, a graduate of the two-year Automotive Mechanics' Course at the New Hampshire Technical Institute, to carry out the program. Superintendent Wentworth, with a year of intensive private experience before accepting the Hampton position, proved his ability to handle any maintenance job from repairing a windshield wiper to replacing an engine. He is responsible for the equipment of all town departments, including 8 trucks, 3 police cars, 5 fire engines, 4 tractors, a grader, a bulldozer, 4 sanders, compressors, gas-operated pumps, power lawn mowers, plows and a tree sprayer. On those occasions when Mr. Wentworth isn't busy in his maintenance shop, he is assigned to one of the town departments as a heavy-equipment operator.

Less Money—More Control

In summing up the first few months' experience, Manager Batchelder has this to say:

> **There is no doubt that this new system is saving us money, but perhaps more important, it gives us complete control. Our resident winter population of around 5,000 jumps to 45,000 on week days and to 80,000 on week ends during the summer vacation season. To handle this influx of visitors, all of our equipment must be in topnotch condition, and we can't afford to have one of our patrol cars or fire engines laid up in a private garage over a week end or even over night. With our new system, these vehicles get priority repairs 24 hours a day, even on Sundays or holidays.**

He also emphasized that the town's equipment is in the best condition ever, saying that in the old days, town personnel kept malfunctioning equipment on the road until it broke down completely. Being under a heavy work schedule, they hated to see the equipment laid up in a garage. When the breakdown finally came, it was usually a good one—expensive and time-consuming. Now, the town practices preventative maintenance, catching and repairing the little things before they become major breakdowns. When breakdowns do occur, repair work starts immediately.

The appearance of Hampton's equipment indicates that pride in the new system is well founded. Each vehicle is getting a new coat of paint. The trucks, with orange bodies and green cabs (green is used to cut down driver fatigue from glare) give the appearance of a fleet operation.

Hampton's maintenance shop also provides its own state inspections, under authority granted by the State Motor Vehicle Department, which first sent one of its inspectors to check whether the town had a qualified mechanic and the necessary equipment. Standard windshield inspection stickers were furnished by the Motor Vehicle Department at no charge to the town.

A simple, yet effective records system supports the maintenance program. This system tells at a glance the life history of every vehicle. One of the more important forms is the Vehicle Operation Record, shown in ***Figure 1.*** The driver or operator of each piece of equipment uses this form to report any deficiencies to the mechanic. The mechanic, in turn, keeps his own record of each vehicle, including the nature of each repair job, parts used and cost. The cost of repairs is charged against the appropriation of the town department owning or using the equipment.

Shop Recommended

A full-time equipment repair shop is working well in the town of Hampton. Does this mean it would work well in your community? The answer to this question lies in several factors: your population, road mileage, activities, number of vehicles, and present maintenance costs. Hampton, of course, is an unusual community: as a small town, it must serve, during the vacation season, a population the size of the state's largest city.

However, town manager Batchelder is so enthusiastic about the shop that he advocates a similar system for all but the smallest communities. For small communities reluctant to undertake the project on their own, he suggests a cooperative equipment maintenance shop serving two or three neighboring towns.

Urban Renewal Must Be Advanced

THE shabby, dull, dingy conditions that are overtaking some of our central cities can no longer be tolerated. These must change, particularly now that people are being given a new vision of living in the suburbs, shopping in the suburbs, and even working in the suburbs.

There are those misguided people who would abandon our downtown districts. They do not realize what they would have to replace. They would abandon a real estate investment in excess of $500 billion, almost twice our total national debt or roughly $3,000 for every man, woman, and child in the United States. They would have to replace the public investment in streets, water lines, sewers, gas, and electrical lines by rebuilding these in new areas. They would have to build anew, and they are finding this out—institutions of the cities such as schools, hospitals, and churches: the protective services such as police and fire; and the cultural resources such as libraries and the theater.

Just as mistaken are those who think that our existing cities can somehow just amble along and survive as they always have.

Redevelopment of our downtown areas is our only real salvation. We are now at the outset of a great and healthy boom in our economy, and the revitalization of our cities will play an integral and foremost part in this boom. During the past ten years since the federal government authorized the urban renewal program, government aid has been only $150 million. In the next fiscal year, 1960 alone, prospects are that government aid will be $250 million.

Civilization cannot be sprawled across the landscape of incomplete satellites revolving around nothing. There must be a center where the highest skills may congregate and exchange ideas and services—where the art of administration may be practiced, and where the human need for mingling with their fellow man can be met.

CLIFFORD S. STRIKE, *President*
F. H. McGraw Co., New York, N. Y.

Regulator-resuscitator-aspirator station behind the driver's seat is served by "M" cylinder installed in a compartment under floor boards (bottom center). Resuscitators are positive-negative pressure type.

Portable oxygen equipment allow resuscitation right at the accident site. Some ambulances carry the NCG Back-Pak.

Oxygen Ambulances Take Breathers

Feature latest life-saving oxygen equipment

By EDMOND ROSTKOWSKI
Supervisor, Central Garage
Milwaukee County Institutions
Milwaukee, Wis.

THE ten ambulances operated by the Central Garage of the Milwaukee County Institutions serve all of the townships, villages and cities in Milwaukee County. In 1957 they made 18,675 calls and handled 24,519 patients.

One of the most important features in the institution's ambulances is the availability of ample oxygen supplies and modern equipment for resuscitation, inhalation and aspiration. Equipped much like emergency rooms in hospitals, the ambulances even incorporate piped oxygen. The oxygen equipment is built into the ambulance according to our own design and specifications.

Portable oxygen equipment which allows resuscitation to be administered to patients right at the scene of the accident, or at any hard-to-get-to location, is stored next to the cabinet just behind the driver's seat. Mounted in aluminum cases, the portable resuscitators are light and easy to carry to the accident site. All of our ambulances can handle four stretcher cases with two sitters and a crew. The cost of the oxygen equipment is less than 5% of the total cost of the ambulance.

MILWAUKEE COUNTY INSTITUTIONS

Central Garage — *Ambulance Calls*

_____ Ambulance No. _____ Date _____

_____ Time Rec'd _____ Trip Time _____ Kind of Call _____

_____ Time Out _____ Intern _____ Stretcher _____

_____ Time In _____ Orderly _____ Sitter _____

From _____

To _____

Call Put In By _____

Remarks _____

Driver _____

CG 8

Call report is stamped under a printing time clock five times in an ambulance call: time of call, time out, time at scene, arrival at hospital and return to garage.

Record of Ambulance Service

Radio dispatching of these ambulances has been developed to a fine point. For each ambulance call, the driver or dispatcher stamps a form under a printing time clock at least five times during the progress of the call: 1) when the call comes in; 2) when the ambulance leaves the garage; 3) when the driver radios that he has arrived at the scene; 4) when the patient has been delivered to the hospital and the driver radios that the ambulance is

again available for call; and 5) when the ambulance returns to the garage.

Although the majority of requests for service are house calls dealing with emergency accident, obstetrical, and psychiatric cases, we respond to practically all types of calls such as train and airplane accidents, highway accidents, and rescue calls. We monitor all police and fire calls by two-way radio and, of course, answer any request for service from medical institutions or the sheriff.

Our training course takes 100 hours a year with heavy emphasis on oxygen therapy in addition to the usual first-aid rescue work. The medical staff of the Milwaukee County General Hospital plays an important part in the training of our personnel. Since 1950, it has no longer been necessary to take an intern or a resident along on ambulance runs. The men are hired through a civil service examination which consists of a written test, a driving test and an oral interview. To be accepted the men must possess: considerable skill in the operation and driving of automobiles or ambulances; ability to make road repairs; thorough knowledge of traffic regulations and the geography of Milwaukee County; good health; good judgment and dependability.

In addition to the ten ambulances, the Central Garage maintains 25 sheriffs' motorcycles and 42 squad cars, 42 department cars, 8 station wagons, 2 buses, 67 trucks, 3 pumping engines, a 100-foot aerial ladder truck as well as county-owned road and construction equipment.

In furnishing service to so many different types of units and equipment, the Central Garage has become an interesting organization. But, why take our word for it? Visitors are always welcome. Next time you are in the vicinity, stop in and see for yourselves.

The Municipal Use of Plastic Pipe

THE USE of plastic pipe in the municipal field is in the experimental stage. Plastic-pipe manufacturers are looking to the use of their pipe in water distribution systems. The small sizes, up to 6 inches, mean that present use would be almost exclusively for house services.

Currently, the municipal use of plastic pipe for water service or other purposes is still at a minimum.

The pipe presents no sanitation danger. Tests conducted by the National Sanitation Foundation proved completely favorable (THE AMERICAN CITY, April 1957, "Plastic Pipe Suitable for Potable Water Supplies," p. 131). Many municipal officials, however, are concerned about its strength and permanence, particularly in view of the fact that the established common types of water pipe last for 50 years or more.

Municipal Applications

Two interesting municipal applications of plastic pipe were reported in The National Institute of Governmental Purchasing Letter Service.

The city of ***Holton, Kans.*** using plastic pipe, obtained an adequate water supply at relatively low cost. Not long ago, the water supply there reached such a dangerously low point that the city instituted voluntary restrictions in its use. The city also began an emergency program to supplement the impounded supply with well water. Time and expense were main factors in the program. There was no time, for example, to float bond issues, and whatever was to be done would have to be paid out of limited current funds.

With the aid of the U. S. Geological Survey, a general area was located near Holton's existing watershed where geologic conditions indicated water could be found. Seven test wells were drilled, and at four locations substantial quantities of water were indicated.

Three pumps were installed, which, working 24 hours a day, could supply the 2,875 residents of Holton with 324,000 gallons of water daily —a volume exceeding the community's average daily requirements and considered remarkable for this area.

The City Commission approved a proposal to use selected plastic pipe to carry the water from pumps to a catch basin connected with the city's water system. Nearly a mile of plastic pipe was purchased — 1,000 feet of 2-inch plastic pipe; 2,540 feet of 3-inch pipe; and 1,380 feet of 4-inch pipe. According to Mr. Fisher, in 30 working days, alternating two-man city crews made the installation, including the excavation and construction of the well pits, the installation of pumps, nearly a mile of trenching and backfill, and the laying of almost a mile of plastic pipe.

Reasons cited by the city manager for recommending plastic pipe included—

- availability in a variety of sizes
- prompt delivery
- low initial price
- ease of installation
- reduced friction loss

The city saved an estimated 40% in initial cost by purchasing and installing plastic pipe instead of other available materials. Because of the smoothness and low frictional resistance of plastic pipe, smaller pump motors could be used and less power is required to run them. Should the wells run dry, light-weight, portable plastic pipe would be easy to reclaim.

In ***San Antonio, Texas,*** more than 25,000 feet of high-impact rigid polyvinyl chloride (PVC) pipe is being used in the city parks' water sprinkling systems. The city's first PVC pipe installation was in 1956 at Maverick Park, a recreation area which covers 3½ acres. Since then, four parks and two sports centers have been equipped with similar "watering systems" and plans call for 12 more parks to be outfitted this year. LaVerne C. Schmidt, landscape architect for the San Antonio Parks and Recreation Department, has estimated that plans will include some 30 to 40 parks.

The Parks and Recreation Department of San Antonio, headed by R. F. Frazer, selected PVC pipe for this underground sprinkling system because—

- economy of installation
- minimized friction loss
- anticorrosion qualities
- speed with which the pipe could be laid.

The original installation at Maverick Park, including trenching, took 10 days, but subsequent jobs have moved even faster. The Maverick Park installation has been in the ground since March 1956 and has withstood constant traffic pressure without pipe failure.

In Kalamazoo, Mich., 11 miles of 1-inch polyethylene skating rink pipe made possible the year-round use of a municipal skating rink. Three days is required to convert the installation from ice to roller skating. During the warm weather the plastic pipe is stored in a 3-foot deep brick trench next to the rink.

City-county cooperation resulted in resurfacing this street.

This clinic is also a joint service.

City, County Cooperate

. . . and bring mutual reduction in service costs

FOR the substantial economic benefit of both units of government, the City of Springfield and Greene County, Mo. are working together under contractual and cooperative arrangements.

This is made possible through a provision of the 1945 Missouri Constitution designed to help local units of government provide governmental service at lower costs.

Tax collection savings

Regarding tax collections, a net saving of $30,000 was realized by the city last year as a result of a contract providing for the county to collect city property taxes. Springfield also has an arrangement with the Greene County assessor under which that official assesses city property within the city's limits. The extent of the savings to Springfield from this cooperative arrangement is difficult to determine but obviously it would cost much more to staff and maintain a separate city assessor's office.

Springfield estimates the savings to the city of more than $15,000 in the administration of its city jail system under a cooperating arrangement. The city confines its prisoners in the Greene County Jail which relieves the city of necessity of maintaining a full-time city jail for some 35 to 40 prisoners, three shifts of jailers, plus relief jailers and facilities for feeding the prisoners.

Election costs lowered

Savings also have been effected during election time. By cooperating in the holding of elections last year, the city, county and schools were able to save an estimated total of $5,000 from the combined use of election judges, clerks, and polling places.

By hiring a single director for both Springfield and Greene County Health Departments costs were lowered and service has improved. By combining the salaries they had available, the city and county were able to offer $12,000 a year and get the services of a professional health administrator for the job, which neither could have afforded on their own.

Clinic costs lessened

Springfield and Greene County are sharing in the care of both acutely ill, indigent patients and convalescent or aged indigent patients and are providing far more effective care at a substantial reduction of original cost.

Among the byproducts of cooperation between Springfield and Greene County is the new policy of the county in spending 25% of its road and bridge tax collection within the city on Springfield streets. This new arrangement gave the city $115,000 in street improvements. Expensive and specialized road equipment is put on a lending basis back and forth. This enables both units of government to have the use of all types of machinery without the necessity of both investing in the same piece of equipment.

The county also has benefited from the city's willingness to provide fire protection to Sunshine Acres, which is the old county farm several miles outside the city limits.

These are examples of the elimination of expensive overlappings and duplications of services which not only point the way to reduced costs but provide far more efficient service through use of cooperative and contractual arrangements between governmental units.

EDITOR'S NOTE: This article is based on a case study of Springfield and Greene County, Mo., entitled, *Substantial Benefits Available from City-County Cooperation*, published by Missouri Public Expenditure Survey, 222 East Dunkin, P. O. Box 56, Jefferson City, Mo., April 1958.

The author, left, confers with battalion comanders, Maj. Paul Costysak and Capt. Doyle over the progress of the work.

A big Caterpillar tractor bulldozes trees to open additional access roads.

Week-End Warriors Built Our Park

Salem, Ohio shows how to get help for important municipal improvements

By LEE A. BURTON
Superintendent
Salem Park Commission
Salem, Ohio

WE in Salem, Ohio have been fortunate to be one of the first cities to secure the services of the U. S. Corps of Army Engineers in a park project. The engineers are available free of charge after the smoke from the army red tape has cleared away. The 929th Engineer Construction Battalion was, and still is, cooperating with our local park department in developing our new park site.

Basic information necessary to receive army cooperation for civic projects is:

1. Locate your nearest Engineers Battalion.
2. Meet officers and men and submit detailed plans and specifications as to what you would like to get accomplished. They require five copies:
   a. Two copies go up the chain of command and if approved, return to local battalion with an OK to use local reservist men and machines for training purposes.
   b. Three copies remain on the local level.
3. After a project has been approved (6 months to one year), the local Reserve Battalion sets up week-end work days.
4. You must release the army from liability for property damage and if possible, where you are working near private property lines, try to get the owners to agree to do the same.
5. At last, the happy day comes when, free of cost to local municipality, army reserve men (50 to 150), machines, D-8 dozers, cook trucks, graders, dump trucks, chain saws, etc., cut loose on your pet project and the work really moves.
6. Special roses to the army from the City of Salem for the cooperation received.
7. The army provides free:
   a. Men
   b. Food for the men
   c. Machines
   d. Gas, oil, maintenance for machines.

The Army gets:
Trained reservists working on worthwhile community projects.

Our present Memorial Park that the army is helping us develop is an area that the water department once used for a well field. At present, only one roadway leads into the park. When the project is complete, the park will have three and possibly four access roads and another road winding through the entire area. It also will have plenty of parking space, multiple-play area, including tennis and basketball courts, space for square dancing, picnics, and similar facilities. The Park Commission will plant trees and shrubs throughout the area to add beauty to the park setting.

UTILIZATION of Army Reserve units for construction purposes must be very carefully planned, and tempered with good judgment by all involved. The kind of work must be clearly suitable for the type of unit available and the stage of training in which it is engaged, and must lend itself to training for the mobilization assignment mission of the unit. Most important, the work should be of a civic or welfare nature and not conflict or compete with the work responsibilities or opportunities of municipal and similar construction agencies, civilian engineers and contractors, and labor.

Normal safeguards have to be established for property rights, safety, liabilities and responsibilities of all concerned. Any costs, supplies or equipment required above those normally available to, or utilized by, the army unit for its usual training would have to be provided. Rate of construction progress and caliber of work must be expected to conform to the drill schedule of the unit and its status of training.

—RALPH A. PALLADINO, Major General USA
Chief, U. S. Army Reserve and ROTC Affairs
Department of the Army
Washington, D. C.

Financing Municipal Off-Street Parking

By EDMOND T. KEENAN
Senior Supervising Engineer
Ford, Bacon & Davis, Inc.
New York, N. Y.

MANY communities need additional parking facilities but have not embarked on a program because, not having explored the various methods of financing sufficiently, they do not realize that financing is possible for them.

Often the need for parking is so great that even a poorly planned program, financed under something less than the most favorable terms, may bring good results. How much better, therefore, to go just a little more deeply into the matter to find the sounder, lower-cost approach that will be accepted more quickly by the voters and will enhance the following widely recognized advantages of a parking program:

- Halting the flight of commerce and industry to the suburbs.
- Reviving faltering downtown business.
- Generating additional retail and office construction.
- Benefiting downtown property values.
- Increasing income from sales, business or similar taxes.
- Reducing mass and private transportation costs by relieving traffic congestion.

The sole function of a municipal parking program is to provide parking when private operators are unwilling or incapable of doing what is necessary to insure these results After a municipal program has been decided on, the first step is for competent engineers to determine the amount of space needed, where it will do the most good, capital costs and gross and net revenues that will be derived. The municipality is then ready to explore ways of financing.

Not only are there a number of tested methods of financing available, but combinations of such methods have been used successfully.

An off-street parking facility, a lot or a garage, may be financed by the city directly, as in the case of ***Jacksonville, Fla.;*** by a city commission as in ***Orlando, Fla.;*** by an authority as in ***Philadelphia, Pa.;*** or by a combination of an authority and the city under a leaseback arrangement, as in ***Sharon, Pa.***

What dictates the choice of one over another? Sometimes state law. Sometimes local experience. Sometimes fiscal conditions. Thus a commission's acts are subject to constant review and approval by the municipal governing body, but an authority is an independent public benefit corporation whose members are appointed for fixed terms. In ***New York City,*** parking financing and operation are handled variously by city departments and by the Triborough Bridge and Tunnel Authority and the Port of New York Authority.

The choice need not always be between just public and just private financing and operation. In ***Baltimore, Md.,*** the city assisted in private financing, while in ***Detroit, Mich.,*** a garage was financed and constructed by private capital under Grand Circus Park, which is public property. The City of Detroit, incidently, receives an annual rental and will obtain title at the expiration of the lease.

How Paid For

Having solved the problem of how to handle a program, the big question becomes: How is the facility to be paid for? By taxpayers at large? Benefited property owners? Motorists? The "business community?" Curb parkers? Users? Some of them? All of them? Or, perhaps, a combination of one or more?

Then there remains the question of what type of financing is applicable to the situation. Direct subsidy, general obligation bonds, revenue bonds and revenue bonds accompanied by a junior bond issue are some avenues to be explored before a final decision is made regarding any method of financing.

Local authorities are generally most successful in tackling their parking problems when they rely on experienced outside help. Indeed, this is essential when there is to be a revenue bond issue, because investment bankers insist on an opinion from an engineer they recognize. For best results the engineer must work with and have the full cooperation of local officials and businessmen, so that the final plan reflects the best thinking of all.

PUBLIC FUNDS

Municipalities can and sometimes do pay for their off-street parking straight from the public treasury. This is true whether the money represents a budget surplus or the proceeds of a general obligation bond issue.

The rationale for such a method of financing parking is that there is wide benefit to be derived; that practically everyone in town will make use of the facility; and, that because parking is good for local business, it will pay for itself through increased tax revenue.

Of course, the municipality may also be reimbursed, in whole or part, from any parking fees.

Financing off-street parking from surplus is not a widely used method simply because few municipalities have surplus money to spare. What surplus they do have they'd rather use for schools, hospitals, street improvements and the like.

General obligation bonds have the full faith and credit of the city behind them and carry the lowest interest rate of any type of debt financing. However, these bonds come under the municipality's debt limit. Most cities are so squeezed

under this ceiling that they prefer using what room they have for non-revenue programs. In some states a general obligation bond issue can be exempted from the debt limit if it is backed by a benefit assessment on real estate.

BENEFIT ASSESSMENT

Benefit assessment is based on the presumption that property owners of the general area benefit most from the improvement and should pay for it. A version of benefit assessment was employed in ***Cleveland, Ohio*** where full assessment for a parking lot was levied against the owners of abutting property. The facility then was leased to the abutting owners for a nominal annual rental with the idea that they would be able to recover their assessment from parking fees charged. While in effect this is not much more than a form of private operation, it has the advantage that the municipality can borrow at lower cost and has the right to acquire property by condemnation.

However, benefit assessment is not widely used to finance parking because it is difficult to determine just who is benefiting and how much. One businessman may benefit more than his neighbor, depending on the type of business. A property owner may not be able to pass on the assessment to the tenant who has a long-term lease. And a businessman who already has provided parking for his customers might be penalized by being forced to pay for parking again.

REVENUE BONDS

Revenue bonds are the most usual method of financing off-street parking. They do not carry the "full faith and credit" of a municipality, so they require higher interest coupons.

What is pledged in an issue of revenue bonds is the income of the project plus such other pledges as may be required to make the bonds saleable. The usual additional pledge is of on-street parking meter receipts, although it is also possible to pledge annual receipts from special taxes to make up any deficits.

In case of default, revenue bondholders cannot "foreclose" but can only appoint a trustee to operate the facility. When the facility is in a position to meet its debt obligations, it has to be turned back.

What are the fiscal conditions under which revenue bond financing is obtainable? Here is a simple axiom: To obtain revenue financing, estimated net operating revenue together with any additional monies pledged must be sufficient to cover the particular debt service—interest and amortization—of each year with a margin of safety.

It is easy to see, therefore, why bond buyers, to protect their investments, require that the revenue estimates be made by engineers who have experience and a reputation in this field.

If the estimated net operating revenues are sufficient to cover debt service, together with the required factor of safety, no additional funds need be pledged. This was the case in Philadelphia. In practice, however, just about all municipal parking programs require pledges of additional revenues.

What is the usual margin of safety? Depending on risk and the state of the bond market, this could vary from around 1.2 to 2.0 times the amount of debt service.

In 1952, for example, the Parking Commission of ***Orlando, Fla.*** floated a $1,200,800 revenue bond issue to construct three off-street parking facilities. Estimates indicated that net operating income would be insufficient to meet interest and amortization. Consequently Orlando pledged the gross revenue of its on-street meters, which was averaging about $90,000 a year. With the addition of this "historic" revenue, a coverage of about 2.1 was obtained for the 3%, 30-year issue.

The term "historic" refers to a quantity that can be gauged fairly accurately on the basis of past performance, as opposed to an estimate without anything to go on. The greater percentage of historical revenue pledged to a financing the lower the risk, hence the lower the coverage required. However, when everything about the issue is based on estimate, bond buyers require greater security in the form of higher coverage. On the other hand, the greater the coverage, the easier it is to sell the bonds, and the lower the interest rate.

The main source of income of off-street parking is from the fees collected. Other sources of revenue are often limited by state law. In Michigan, the law forbids renting commercial areas and the sale of auto supplies. Pennsylvania does not mind renting space, but forbids gasoline sales. The Battery garage owned by the Triborough Bridge and Tunnel Authority in New York City rents store space, sells gasoline and auto supplies and washes cars.

The pledge in regard to street meter revenues usually takes one of two forms. In one case, meter revenues not needed to make up deficits are divided between a bond redemption fund and a renewal and replacement fund. This provides for accelerated bond redemption as well as for construction of additional facilities. In the other case, the meter surplus reverts to the city treasury with no strings attached.

In Orlando, the surplus goes back to the city, but by local ordinance, it is pledged to building more parking facilities. These facilities become part of and enlarge the existing parking system without increasing its bonded indebtedness.

In a given situation it may be wiser to reduce the amount of the bond issue than to pledge additional monies. Grants of money and property are two ways of accomplishing this. Property, for example, may already be owned by the city, or perhaps it can be acquired cheaply in the course of a reclamation and slum clearance project. In New York City, the city turned over property it owned for the very successful Battery parking garage.

Junior bonds are another way of reducing the primary bond issue. They are subordinate to the main issue in regard to interest and amortization, not becoming senior bonds until the main issue has been paid off. Probably the only persons who would be interested in junior bonds are local property owners, merchants and other citizens who would benefit from a parking program they might not otherwise get.

LEASEBACK

Many methods and combinations of these methods have been devised to make off-street parking financing possible and less expensive. One is leaseback—a legal method in Pennsylvania but illegal in some other states. As applied in ***Sharon, Pa.***, the leaseback worked as follows:

The municipality created a parking authority to borrow the money needed to construct off-street facilities. Simultaneously with the financing, the city leased the facilities from the authority at a fee slightly higher than the debt service. The lease was for a term equal to the length of the bond issue.

The effect was to put the faith and credit of the city behind the debt service. Therefore, an interest rate of about ½% over a general obligation rate and much lower than a revenue bond rate was obtained. At the same time, the bond issue did not come under the city debt limit.

Four years ago, Newport, Ark. replaced an obsolete water plant with this modern 2.0-mgd facility.

We Started from Scratch to Improve Our Water

Newport, Ark. finds: Better supply + more thorough treatment = satisfied customers

By H. J. RIDLEY, *Manager*
Municipal Water Company
Newport, Ark.

SINCE 1954 the 7,000 citizens of this northeastern Arkansas community have enjoyed soft, iron-free water. In the summer of that year we closed our old plant, abandoned the wells and moved across town into completely new facilities.

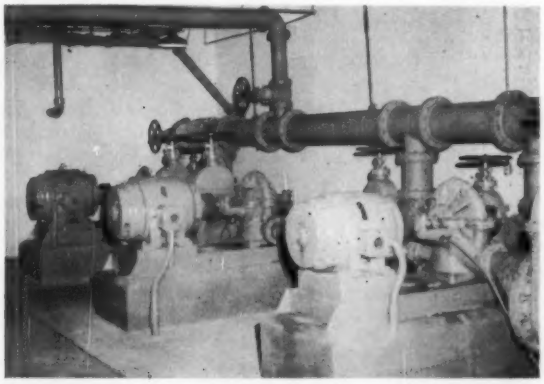
Prior to the change, Newport obtained its water from wells adjacent to the White River. This water contained about 125 ppm of hardness, all in carbonate form and about 2.38 ppm of iron. We removed the iron by sedimentation and filtration, but made no effort to remove hardness. Although this plant had sufficient capacity, it was obsolete in design and deficient in clearwell capacity.

An analysis of future water requirements of the city, made in 1952 by the engineering firm of Marion L. Crist & Associates of Little Rock, indicated the need for future enlargement of our supply facilities. A study of water sources comparing White River water with that from the wells showed a well supply would serve the city more economically. Fortunately, Newport lies in an area of abundant ground water. Further study showed the aquifer in the eastern part of the city to be of coarser sand and of greater thickness than the one in use. Thus, we decided to purchase a new site in the eastern part of the city, construct a new plant and drill wells in the vicinity of the new plant.

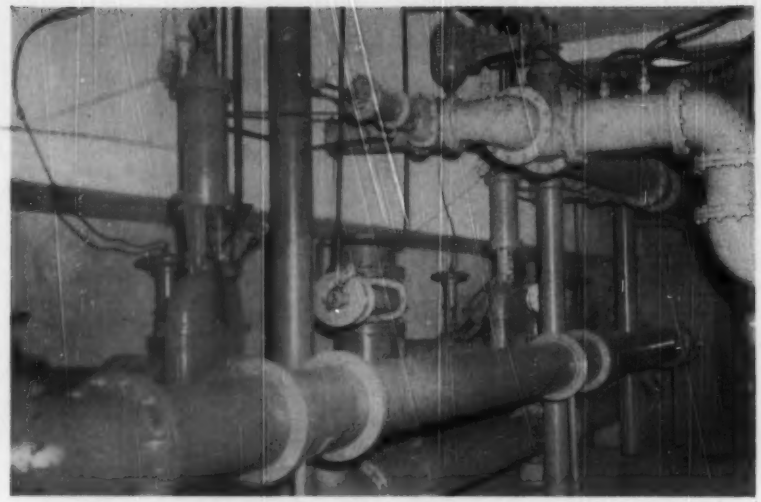
Sedimentation and Filtration

Our present supply consists of two wells drilled by Layne-Arkansas Company. They are approximately 100 feet deep with 16-inch casings,

Following aeration, the water passes through this 2.0-mgd capacity, upflow, blanket-type settling basin.



Operation of the three high service pumps is automatically controlled according to the water level in the elevated tank.



A view of the pipe gallery showing filter controls and valves. Hose connections (upper right) are for fluoride and chlorine.

10-inch screens, Halliburton seales, and a 30-inch diameter gravel envelope around the screens. Each is equipped with a Layne pump that discharges to the Infilco "Multicone" aerator on the roof of the filtration plant. The wells have a capacity of about 700 gpm each.

The four-story filtration building houses the high service pumps in the basement level; office, laboratory and pipe gallery on the ground floor; chemical feeders and filter-operating floor on the next level; and chemical storage room on the top floor.

From the aerator, the water flows into an Infilco Accelator, an upflow, solids contact unit. Our unit has a capacity of 2.0 mgd.

Lime and alum are added to the center cone and Calgon is added to the settled water before reaching the filters to avoid excessive deposition on the sand grains.

The three gravity filters each have a capacity of 500 gpm based on a filter rate of 2 gallons per square foot per minute. Weirs in the filter inlets control the division of settled water between the three units and Fisher Governor basin-level controllers regulate the water level in the filters as well as the flow through them. The plant uses a pump to backwash the filters, drawing from the 500,000-gallon clearwell.

The final step in the treatment process consists of fluoridation and chlorination, using Wallace & Tiernan equipment. The chlorinator which has a capacity of 100 pounds per 24 hours, is automatically controlled from the raw-water orifice.

Automatic Operation

We have three Fairbanks-Morse high service pumps, two rated at 1,500 gpm and one at 750 gpm. They are automatically controlled by Builders-Providence telemetering equipment, with a transmitter at the elevated tank on the distribution system and a receiver with pump controls at the plant.

When the water level in the clearwell drops to a predetermined point, an Automatic Control Company Type M Selectrol starts one or both of the well pumps. A Builders-Providence Inc. transmitter, actuated from an orifice in the raw water supply line, motivates two receivers. The one in the laboratory is a recording and totalizing instrument that shows the flow through the plant; the other in the filter operating room controls the lime, alum, fluoride and Calgon feeders, proportioning their "on" time to the raw water flow. The same transmitter also controls the timing device for the diaphragm blow-down valves on the upflow basin by proportioning the "time-on" of the timing device to the raw water flow.

Thus, the water level in the elevated tank controls the high service pumps while the level in the clearwell controls the well pumps and treatment process.

Marion L. Crist & Associates of Little Rock designed the plant and supervised construction. It was constructed by Don P. Pray, Inc., Monett, Mo.

The city financed the treatment plant, together with distribution main extensions, as a single project through the sale of $343,000 in water revenue bonds. These bonds, sold at an interest rate of 3.0%, mature serially over a 30-year period.

A three-man Water Commission, composed of R. C. Biggadike, chairman, John A. Hinkle and W. F. Hurley operates the utility. J. N. Hout is the present mayor of Newport. The writer serves as manager.

Water Commissioner Named Engineer of the Year

WATER COMMISSIONER Samuel S. Baxter was named the 1959 "Engineer of the Year" by the Philadelphia Chapter, Pennsylvania Society of Professional Engineers in its January meeting.

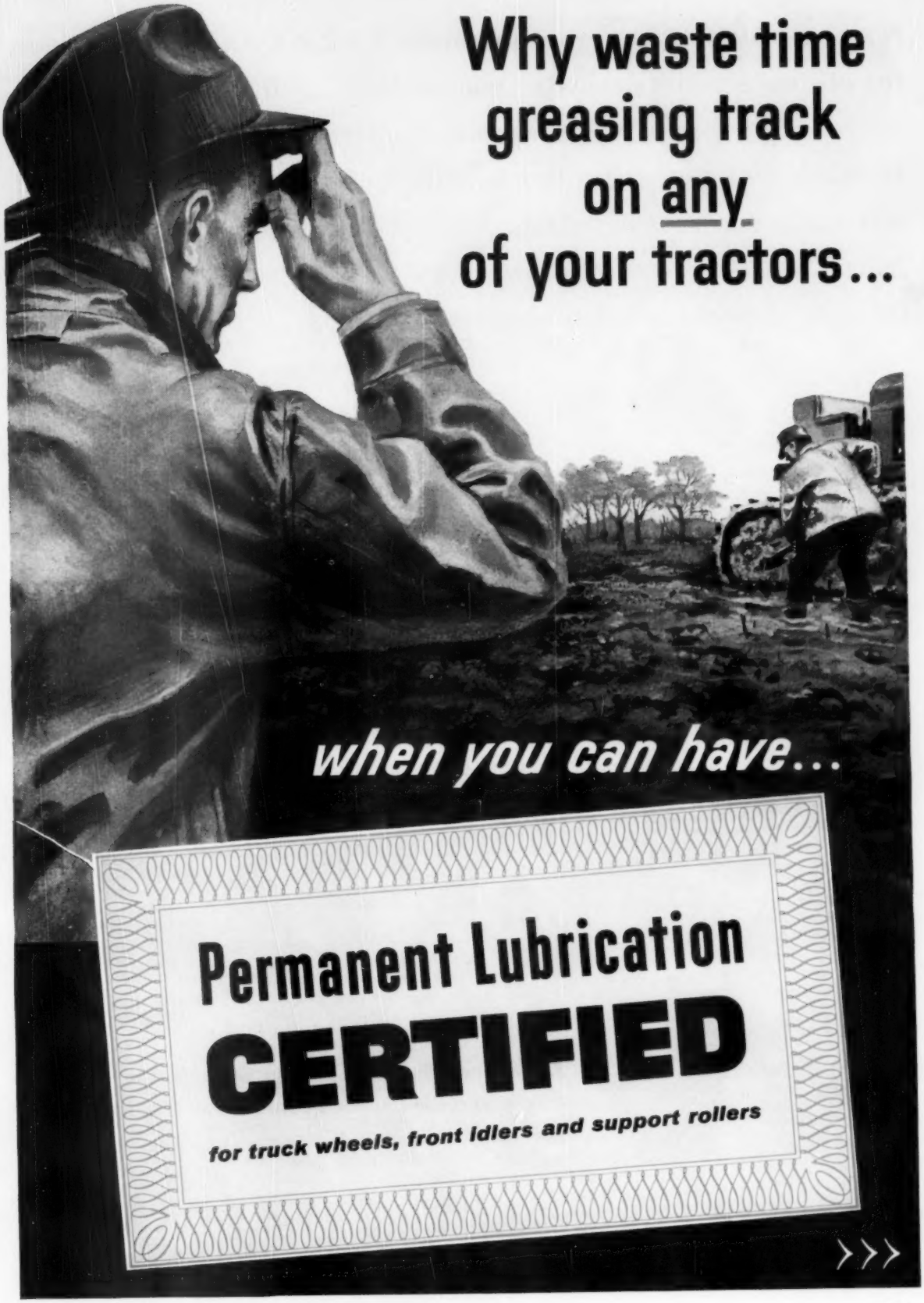
Citing Mr. Baxter for "outstanding direction of the city's $500 million program for modernizing its water and sewerage systems," the engineers' society noted that Philadelphia will reap this year some of the most important fruits of this program.

These include the opening of two modern water treatment plants, as well as the initial operation of a centralized network of electronic controls for part of the city's water distribution system.

The society noted that under Mr. Baxter's leadership the Delaware and Schuylkill Rivers have been largely cleaned up, with consequent benefit to the city's water supply, the Port of Philadelphia, and the recreational activities of citizens.

In its citation the society called attention to the opening of modern sewage treatment works, the improvement of pumping stations, and the laying of many miles of water mains and sewers in the past few years.

Mr. Baxter, who was named Water Commissioner in 1952, entered municipal service in 1923. He became Chief of Plans and Registry in 1932 and Assistant Director of the old Department of Public Works in 1940. In the postwar years he served as the city's chief engineer. During World War II, he was a major in the U. S. Army Engineers Corps. He was responsible for the design and construction of Oak Ridge, Tenn., and served as the first town manager of that atomic city.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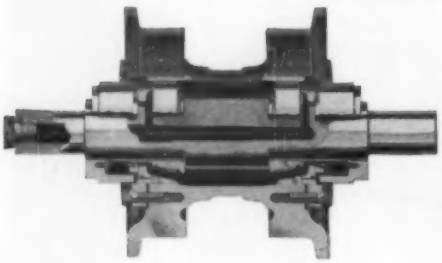
The Positive Seal PERMA-SAFE Wheel

for truck wheels, front idlers and support rollers on all models of Allis-Chalmers crawler tractors



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. . . power for a growing world

The widening and repaving of heavily-traveled Second Street received top priority in the program.

Priority system, completed engineering plans, and cost estimates form basis of sound rehabilitation program for . . .

Presque Isle's City-Wide Street Program

By HOMER S. BRIGGS
Senior Engineer
Fay, Spofford & Thorndike, Inc.
Boston, Mass.

INSTEAD of repairing streets piecemeal, officials of Presque Isle, Maine, last year faced facts realistically. They abandoned a catch-as-catch-can policy, replacing it with a program that would immediately affect the city's major arteries and, over a ten-year period, would result in the rehabilitation of every street in town.

No financial windfall or sudden boom led to this decision. On the contrary, Presque Isle (population about 12,000) is in many ways typical of other small communities throughout the country. It has 75 streets totaling 23.9 miles in length, and just about all of them, until the program started, were in bad condition. The surfaces were spotted, cracked, and rough in many areas, a condition caused by the combination of a high clay content in the soil and an average frost penetration of 60 inches. Drainage was poor. In addition, an increasing volume of traffic, caused in part by the proximity of Presque Isle Air Force Base, was accelerating deterioration.

Realizing that day-to-day repairs not only were ineffective but were dissipating city funds, the officials decided to obtain an impartial engineering report that would take into account the condition of the various streets, the state's plans for the area, the present and anticipated volume of traffic, and the availability of funds. This information would then be used to develop a sound rehabilitation program for all of Presque Isle's streets.

Program Evolution

The city awarded a contract for this study to the Boston engineering firm of Fay, Spofford & Thorndike, Inc. Field men from the staff walked over every street in the community, noting the condition of the surfaces, the provisions for drainage, and the general traffic activity. Traffic counts were made on the principal thoroughfares, and street profiles checked against existing maps. In general, these investigations indicated that:

1. Both a short- and long-range program were needed.
2. The most practical method of attacking the immediate problem was to concentrate funds and efforts on a priority basis against specific streets and sections.
3. Only a few streets were in satisfactory condition—namely, Main Street, a through highway recently reconstructed by the state; and several previously improved or repaired local streets.

This information formed the basis of a six-group priority system. The estimated cost of rehabilitation work included in each group is shown in the following table:

Estimated Construction Cost of Street Rehabilitation

Group	Estimated Cost
1	$480,000
2	500,000
3	325,000
4	755,000
5	245,000
6	340,000

Primary thoroughfares having a

A number of small grades, such as shown here, necessitate the construction of drainage lines in many sections of the town.

three- and four-rod right of way were designed for 30- and 40-foot pavement widths. Pavement widths for secondary streets having a two-rod right of way were made 20 and 24 feet. Wheel loads of 12,000 and 7,000 pounds, respectively, were used to figure the depth of road beds. Since the cost of excavating to depths below the expected frost level of 60 inches was prohibitive, a plan was developed whereby extensive underdrains permitted lesser depths. The design covering residential streets calls for 18 inches of subbase gravel; heavily traveled ones for 30 inches. The report recommends a paving material of bituminous concrete, 2½ inches in depth for all surfaces.

Because of the extreme frost condition and potential danger of damage from snow plows, specifications call for granite curbing even though it cost more than other alternates. Only in sections abutting existing concrete curbs was this criteria changed to concrete, and then only to preserve appearances.

With existing facilities consisting of nothing more than side ditches, an entire system of drainage had to

With engineering plans completed for all streets, city officials can schedule reconstruction on streets such as shown here, whenever funds become available.

Fantastic?

Not when you *rent* a Wayne Street Sweeper, pay for it out of operating funds... and actually own it at the end of the rental period for just $1.00—*all without capital investment!*

Cities all across the nation... and cities of *every* size... are making this Wayne Rental Plan the simple, convenient method of starting their own street sanitation program. Labor savings alone can pay the cost, streets are kept sparkling clean, and the Wayne is yours for continued service for years to come.

Before you invest in *any* sweeper equipment or program, send for the brochure outlining the exclusive Wayne Rental Plan for municipalities. It's yours for the asking—*write today!*

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NEW SEAL LASTS FIVE TIMES LONGER

New pump shaft seal design mates carbon seat against ceramic-coated bronze ring for extra long service life on toughest pumping jobs. This new seal, standard equipment on the new Homelite "300" pumps, lasts five times longer than ordinary cast iron-bronze seals to slash pump downtime and maintenance costs to a new, negligible low.

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

Add up all the features of the new Homelite "300" pumps and you'll find your best and surest pump answer to saving money on the job.

More Capacity. These new 3" pumps handle 18,000 gallons per hour. That's 300 gallons per minute. You can do your pumping in minutes . . . eliminate labor-costing delays. You can pump muddy or sandy water easily without clogging.

Light Weight. With dimensions of 25" x 19" x 23", the Homelite "300" pumps weigh only 103 pounds. They're easy to truck, easily picked up and carried by one man, fast to get on the job in any location.

Higher Head. Homelite "300" pumps are guaranteed to self prime at 28 feet above water level. Total head, including friction, is 65 feet. Standard-speed model gives you a total head of 125 feet. High-pressure model gives you total head of 185 feet.

Variable Speed. Hand throttle control allows you to pace these pumps to the job. You can throttle them down for quiet, economical handling of seepage.

Longer Life. Homelite pumps are famous for fast starting and trouble-free operation in any kind of weather. The design and workmanship that goes into a Homelite air-cooled gasoline engine driven pump is your guarantee of long life for the pump. Now with the new seal, standard equipment with the "300" pumps, you're even surer of long life and low maintenance cost.

It will pay you to ask for a free on-your-job demonstration of the new Homelite "300" pumps right away. Three models available: slow-speed; standard-speed and high pressure.

Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call them or write for convincing demonstration or rapid service in any way.

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PUMPS GENERATORS • BLOWERS CHAIN SAWS

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102 Riverdale Ave., Port Chester, New York
In Canada—Terry Machinery Co., Ltd.

be planned. A large area of the city is located on a steep grade and the volume of storm water that runs off is high. An overland flow rate of 30 feet per minute generally was used throughout the design with street drains and culverts sized and distributed on the basis of rainfall intensities of a five- and 15-year storm, respectively. Maine State Highway standard drainage structures have been specified.

Program Started

Initially, Presque Isle had allotted $500,000 toward the engineering and reconstruction costs. Almost immediately, however, the scheduling had to be revised because of an unexpected classroom shortage in the school district that was met by diverting available funds towards the town's share of a new high school. Nevertheless, close to $100,000 remained for the initial phase of the street program. This was used to reconstruct all of Second Street and a portion of Church Street. The city appropriated another $100,000 for the year 1958 and spent this for the reconstruction of three more streets. As soon as additional funds are obtained, the remainder of the streets in Group I will be repaired.

City Manager John Henchey believes there is every indication that the program will continue and that the people of Presque Isle are more than pleased with results to date.

The city still has a long way to go before it completes this ambitious street program. But it knows how to proceed and has a systematic plan to finish the job. Even so, as the town officials know, the solution will be temporary, for with growing population and traffic, there is no such thing as a permanent solution. But by then, the community will be in a far better position to undertake expansion, for it will have put its existing system in order.

Second City to Pay Unemployment Compensation

DETROIT has become the nation's second city—Milwaukee was the first—to provide unemployment insurance coverage for its employees. Michigan and Wisconsin are the only states that have legislation permitting municipalities to extend such coverage to employees, according to Public Personnel Association.

Milwaukee Taxes Are Lower Even Though Higher

TAXES aren't exactly like the case of the man in a Pullman car who "took an upper because it was lower," but one gets the same sort of a feeling when Budget Supervisor Edwin C. Whitney explains that they actually are 1.4% lower, when they are 46.3% higher.

Actually he is exactly right and wouldn't have said it if he weren't. Since 1950, property taxes have risen 46.3% in Milwaukee. However, during that same period, the average hourly wage for manufacturing industries in Milwaukee County has risen from $1.61 to $2.39, or 48.4%. Consequently, property taxes take a 1.4% smaller slice out of the average man's paycheck than they did in 1950.

Stated another way, the owner of an average one-story house in Milwaukee had to work about 142 hours to earn enough money to pay his property tax bill in 1950. Today, he has to work only 140 hours.

Insure against flies and mosquitoes next summer by including Buffalo Turbine Sprayers in your budget NOW

- Enjoy longer lasting, more efficient, wide-area insect control for as little as 15 cents per acre.
- Penetrates a city block from vehicle on the street.
- Does not spot cars, homes or windows.
- Covers 50 acres per hour.
- Kills more flies and mosquitoes at lower cost than any other method.

Yes, now is the time to include the necessary funds in the budget to rid your community of disease carrying flies and mosquitoes. And the most efficient, most economical equipment you can buy is the Buffalo Turbine Sprayer-Duster that permits TURBO-SPRAYING of liquids for larviciding or TURBO-DUSTING for adult insect control. These methods can be carried out separately or simultaneously as desired.

A powerful "Turbulent Air" blast atomizes and blows spray or dust (velocity up to 180 M.P.H., volume 14,000 cu. ft. of air per minute) in a controlled pattern.

Low initial and maintenance costs make this the most economical control equipment available today!

Buffalo Turbine Sprayer-Duster operated from pickup truck in action at Lawton, Oklahoma.

Write for literature and prices.

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An overall view of the plant, showing Parshall flume (left), primary clarifier and one of the oxidation ponds. Metal building houses meter, chlorinator and other equipment.

First of Its Kind in Arkansas

Booneville sewage disposal plant utilizes oxidation ponds as a secondary treatment process

By MARION L. CRIST
Marion L. Crist & Assocs., Inc.
Little Rock, Ark.

BOONEVILLE'S sewage treatment plant, now two years old, is small, but it represents the first application of oxidation ponds in the State of Arkansas. The use of oxidation ponds as a secondary treatment process is particularly adaptable to the Booneville situation because of the need for a high degree of bacterial purification and a stabilized effluent from the standpoint of oxygen demand.

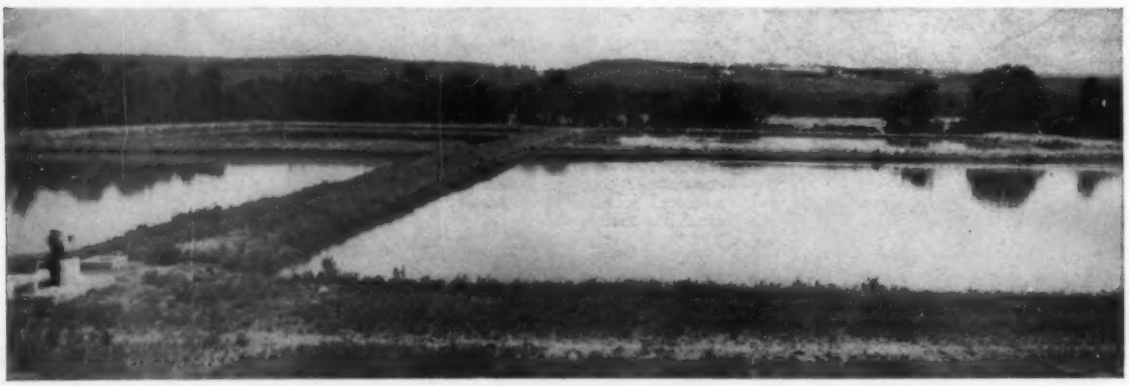
Early tests and subsequent experience show that this is being accomplished. The plant was put into operation in the late fall and the ponds filled with settled sewage during the rainy winter season. Tests made by the Arkansas State Board of Health, following a long period of cloudy weather, showed an oxygen content in the effluent from the ponds of 16 ppm. In spite of the cloudy weather, the two final ponds had a green cast indicating a rather prolific growth of algae. The initial ponds, while slightly gray, had no odor whatever. During the two years of operation there has been no complaint of odor or insect nuisance from the ponds in spite of the fact that one of the finest homes in the city is within 200 yards of the plant.

The four ponds are arranged in two series, with two ponds in each series. They have a total surface area of 6.65 acres and a depth of four feet. Design was based on the following criteria:

Present population	2,800
Estimated 1975 population	5,200
Average flow—75 gallons per capita per day	390,000 gpd in 1975
BOD	0.17 pounds per capita

At the design flow of 390,000 gpd the four ponds provide a 22-day detention period. Design applied loading is 93 pounds BOD per acre.

Settled sewage may be introduced into either of the two first ponds, from which it flows into the second



The four ponds are arranged in two series, with two ponds in each series. One of the two recirculating pumps is at left.

Uncover water mains, gas lines, sewer stubs fast—backfill as quickly.

KEEP YOUR PEOPLE HAPPY!

It's during the spring rush of cleanups, minor repairs, improvements . . . when the phone almost rings off the hook . . . that Allis-Chalmers utility tractors can be just about the most important machines in your entire line-up.

Men like you, with responsibilities for public works, roads and streets, waterworks, sewers, airports and parks, can keep the taxpayers happy by completing *more* jobs ahead of complaints this spring. Here's how:

For timely mowing . . . hammer knife, sickle bar, rotary or reel-type mowers.

Take care of shoulder erosion fast by cleaning ditches and reshaping.

Load loose material from streets and alleys. Fork attachment also available.

Clear streets and sidewalks of loose material or snow. Clean up material yard.

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Because Allis-Chalmers tractors have a new design that lets you move faster, easier to *get more work done.* Take the low-profile, high-clearance feature for example. The weight and profile are low where you want them for extra stability . . . yet there's room underneath to let you work over rough dirt, berms, brush. Operation is simple, too, and even inexperienced operators can do good work for you with little supervision. But why not see for yourself on a demonstration? It'll prove that this is a sure-fire way to get more work done to the satisfaction of your community.

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D-14 43-hp, 4,200-lb weight
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Utility Tractors and Equipment
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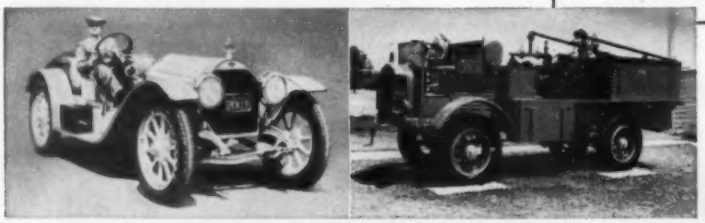
How YOU- can benefit from-

This year of 1959 is the Golden Anniversary of Wisconsin Engines. It heralds 50 years of continuous engine progress. Fifty years of engineering development and exclusive specialization in the design and manufacture of engines.

- From the very first, over a span of 50 years, Wisconsin Engines have been leaders in the internal combustion engine field from the standpoints of *quality* and *performance*... with direct benefit to *you* as a power user.
- Originally manufactured in a power range up to 200 hp., Wisconsin Engines helped to make automotive history as well as supplying dependable power for many industrial applications — service that called for the most advanced engineering.
- Heavy-duty design and construction and High Torque performance have been traditional features of *all* Wisconsin Engines. You get longer life from Wisconsin Engines and lowest cost maintenance.
- Today the Wisconsin line comprises the most complete line of Heavy-Duty Air-Cooled Engines in the industry. They are supplied in 4-cycle single cylinder, 2-cylinder and V-type 4-cylinder models in a complete power range from 3 to 56 hp. There is a Wisconsin Engine of the right size and type to fit the job and the machine.
- Every Wisconsin Air-Cooled Engine is designed for heavy-duty service under all climatic conditions from low sub-zero to 140° F. You get the *Most Engine* for your money for MOST HP. HOURS of service.
- For 1959 Wisconsin has available a complete line of factory-built LPG Engines (including conversion kits for field installation on Wisconsin gasoline engines). In addition, we offer a new line of heavy-duty, quality-built Vertical Shaft Engines, from 3 to 7 hp.
- More than 2000 convenient Wisconsin Authorized Service Stations stand ready to provide expert servicing and factory-built parts for all Wisconsin Engines.

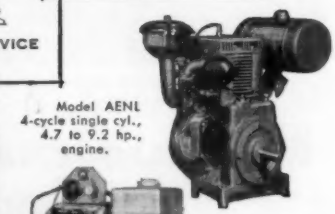
Constructive experience is a priceless asset. The benefits to the manufacturer, distributor and user of power equipment are many. You are best served in all respects when you specify "WISCONSIN ENGINES"... *for better service, low-cost maintenance, trouble-free operation and long engine life.* Write for engine bulletin S-237.

from water-cooled Automotive and Industrial Engines, to WORLD LEADERSHIP IN THE MANUFACTURE OF HEAVY-DUTY AIR-COOLED ENGINES for all types of power service.

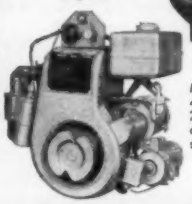


This 1914 Stutz Bearcat, one of the most famous and rugged cars of its day, was powered by a Wisconsin Heavy-Duty Water-Cooled Engine . . . a power leader of high recognition even at that early date.

This FWD Wisconsin-powered truck, known as "No. 28," was purchased in 1921 from Army Surplus, and after many years of service is now on display at the Halliburton Oil Cementing Co., in Oklahoma.



Model AENL 4-cycle single cyl., 4.7 to 9.2 hp., engine.



Models ACN — BKN 4-cycle single cyl., 2.5 to 7 hp., with combination electric starter and generator.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

A8-6226

pond and then overflows into an adjacent creek. A small outdoor-type pumping station, consisting of two 700-gpm Fairbanks-Morse vertical propeller-type pumps, permits recirculation when needed. Oxidized effluent from the final two ponds can be returned either to the pumping station directly for lifting into the two initial ponds or to the clarifier for freshening up that unit.

In addition to this provision for avoiding local septicity in the two inlet ponds, a Wallace & Tiernan manually controlled chlorinator can be put into service to further safeguard against such a condition.

Neither recirculation nor chlorination has been necessary to date. This may be because the present BOD loading is only about 50 pounds per acre per day, or it may be because the heavy rainfalls of both summer seasons since the plant has been in operation have acted as a dilution.

Converted Imhoff Tank

In addition to the four ponds and recirculation pumps, the plant has a Parshall flume with a Builders-Providence, Division of B-I-F Industries integrating, recording and indicating meter; a circular primary clarifier using a Process Engineers' Type SB-3 clarifier mechanism; and an existing Imhoff tank, covered and converted into a digester with gas-collecting and burning facilities.

The clarifier has a diameter of 28 feet and a sidewater depth of 7 feet. At design flow it provides a detention time of 1.85 hours and has an overflow rate of 800 gallons per square foot per day.

The converted Imhoff tank has a capacity to serve approximately 2,300 persons. All other elements were designed to serve 5,200 people.

The plant also incorporates a Marlow Type PE-61 "simplex" plunger sludge pump to transfer sludge from the clarifier to the digester. Sludge is dried on open beds covering an area of 5,200 square feet.

Bond Financed

Booneville, population 2,800, is a trading center for an agricultural area, the chief activities are dairying, stock raising, and poultry production. It was originally served by a covered Imhoff tank constructed in 1929. This tank was no longer effective, and the city was ordered by the State Board of Health to provide more adequate sewage treatment.

The contract price for the new plant amounted to about $62,600. It was financed by sewer revenue bonds, sold at an interest rate of 3.75% and maturing serially over a 30-year period. The city sold sufficient bonds to construct the plant and also extend sewers.

Differential Sewer Charge

Since the treatment facilities were of general benefit to the whole community while sewer extensions were of purely local benefit, the city established a differential sewer charge. Sewer customers in the new area pay a charge 50% higher than those in the old area. Charges are based upon the class of customers served and involve a charge of $2 per month for a single-bathroom residence in the old area. Higher fees are assessed against multiple-bathroom residences and commercial establishments.

This work was accomplished under the administration of Mayor Grover Whitworth. Mr. J. H. Evans, city attorney, also serves as attorney for the city sewer committee. Construction was by the Worth James Construction Company of Little Rock, Ark.

McWANE
2-INCH
TYTON JOINT

20-ft.
LAYING LENGTHS

Engineers and water works officials prefer cast iron for small water mains for the same reason that they use cast iron for large mains—cast iron lasts for centuries!

McWane Tyton* Joint cast iron pipe 2" and 2¼" diameters is cast in 20-ft. laying lengths, permitting pipe line construction two to three times faster than old fashioned 6-ft. or 9-ft. lengths. Additional ease and speed in construction is due to the Tyton Joint which eliminates need of bell holes. The only joint accessory is the Tyton Gasket, gripped with fingers of one hand as shown above for insertion into the bell. Then two pipe are pushed together with a crowbar. That's all! That makes the joint! IMMEDIATE SHIPMENT now offered. Write for illustrated pamphlet. (*Patented and ®).

2" and 2¼" Through 12"
For Water Mains

McWANE CAST IRON PIPE COMPANY
GENERAL OFFICES & FOUNDRIES, BIRMINGHAM, ALA.
Sales Offices: Dallas Chicago Kansas City New York Birmingham

Skate Today—Pay Tomorrow

White Plains, N. Y. builds major city improvements on time, finances skating rink with five-year notes

A 15,725-square-foot municipal skating rink is the newest completed project under a long-range capital improvement program of the City of White Plains, N. Y.

The $210,000 facility, though substantially completed in November 1957 and placed in operation on a limited basis last year, is now fully completed and equipped to accommodate the unanticipated crowds that are using it during its first full season of operation.

In addition to the 85- x 185-foot rink, facilities include a warming room, rest rooms, ticket booth, skate shop with rental accessories and a refreshment concession. These are housed in a building that was renovated for the operating plant and equipment at one end, with accessory and service facilities at the other.

Outside facilities include an observation stadium and a drained snow storage area that is accessible to trucks of the city's Department of Public Works.

An unusual feature is the short-term note method of paying for the facility.

Five-Year Financing

Under the city's long-range program of planning for capital improvements, preliminary plans and designs are started three to five years in advance of target dates for commencement of construction.

Possibly the most interesting point in the program is the financing arrangement.

All major improvements are paid for under a system established several years ago by the Mayor and Common Council. Estimates are made of initial costs—preliminary design, site preparation, planning—and an early budget appropriation for this work is voted as a line item out of current tax revenues.

The balance of funds necessary for completion of the project is raised through sale of five-year capital notes.

Skating rink financing is typical of the method. Initial costs were met under a line-item budget appropriation of $35,000. Estimated total cost of the project was $210,000, so the Common Council authorized issuance of capital notes in the amount of $175,000. The finance commissioner then sold the notes.

Each is a one-year capital note with annual renewable option for 20% less than the original amount each year for a period of four years. Interest is paid annually and each year 20% of the principal sum is retired. Thus, in 1962, the skating rink will be paid for in full. In this manner, an incinerator, which was

the major project for 1956, the rink project for 1957 and a water pumping station that represented the 1958 portion of the planning program are all being taken care of in a continuing five-year plan.

The Skating Rink

The skating rink, constructed under the control and supervision of the Department of Public Works and operated by the Department of Recreation, was designed by Peter Carver Associates, New York. It has a concrete surface allowing use throughout the year for a wide variety of recreational activities. Summer activities can include roller skating, shuffleboard, dancing, and basketball. The rink is adjacent to the municipal tennis courts.

The rink rests on an 8-inch blanket of broken stone placed in two compacted 4-inch lifts on an excavated and prepared earth subbase. A 5-inch reinforced concrete base slab was placed upon this stone blanket and topped by a continuous plastic membrane lubricating layer.

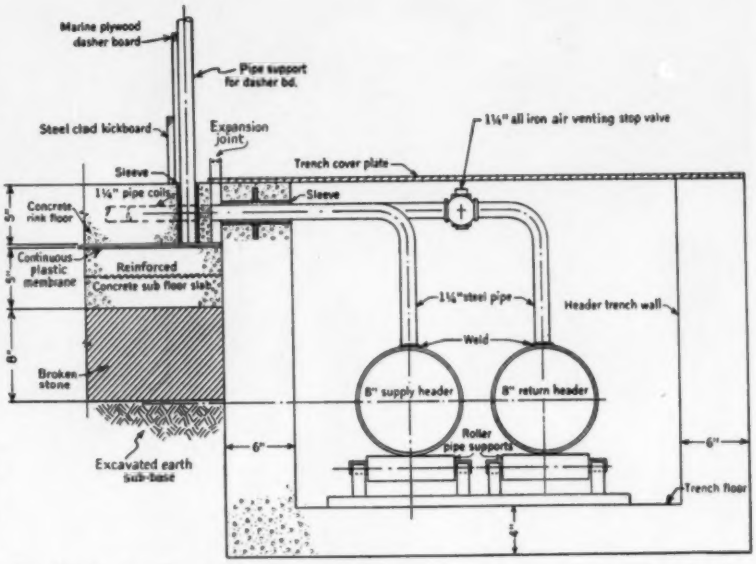
Brine coils of 1¼-inch-diameter A. M. Byers wrought iron pipe were then fabricated and installed in single U-sections, elevated approximately two inches above the membrane lubricating surface. The supply leg of each coil draws directly from an 8-inch I.D. supply header, while the return leg leads into an 8-inch return header through an air venting stop valve.

Supply and return mains run the full width of the rink and are supported on rollers to allow free axial expansion and contraction of the header mains.

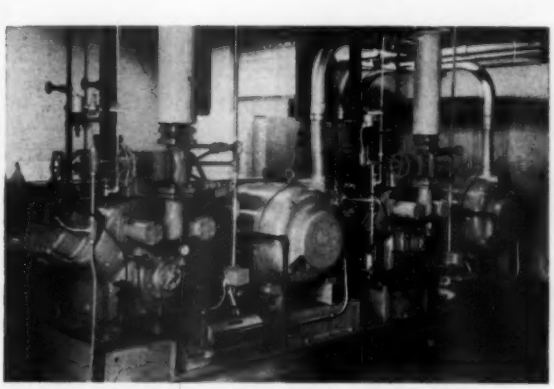
After installation of the coils and the setting of sleeve supports for dasher-board stanchions, a 5-inch en-

(Continued on page 130)

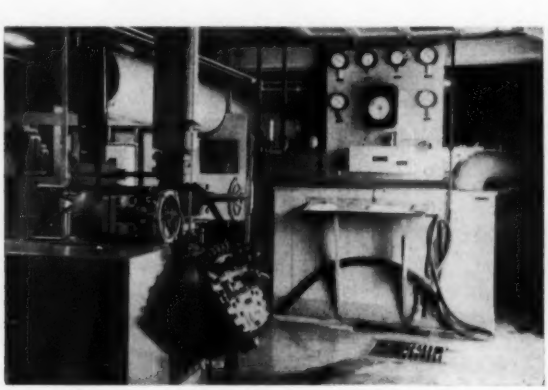
Warm-up room occupies major portion of remodeled services and plant building. Skate shop is located at left, rear background.



Supply-return coils are led through trench wall in sleeves allowing free-floating slab reasonable motion during temperature pull-down.



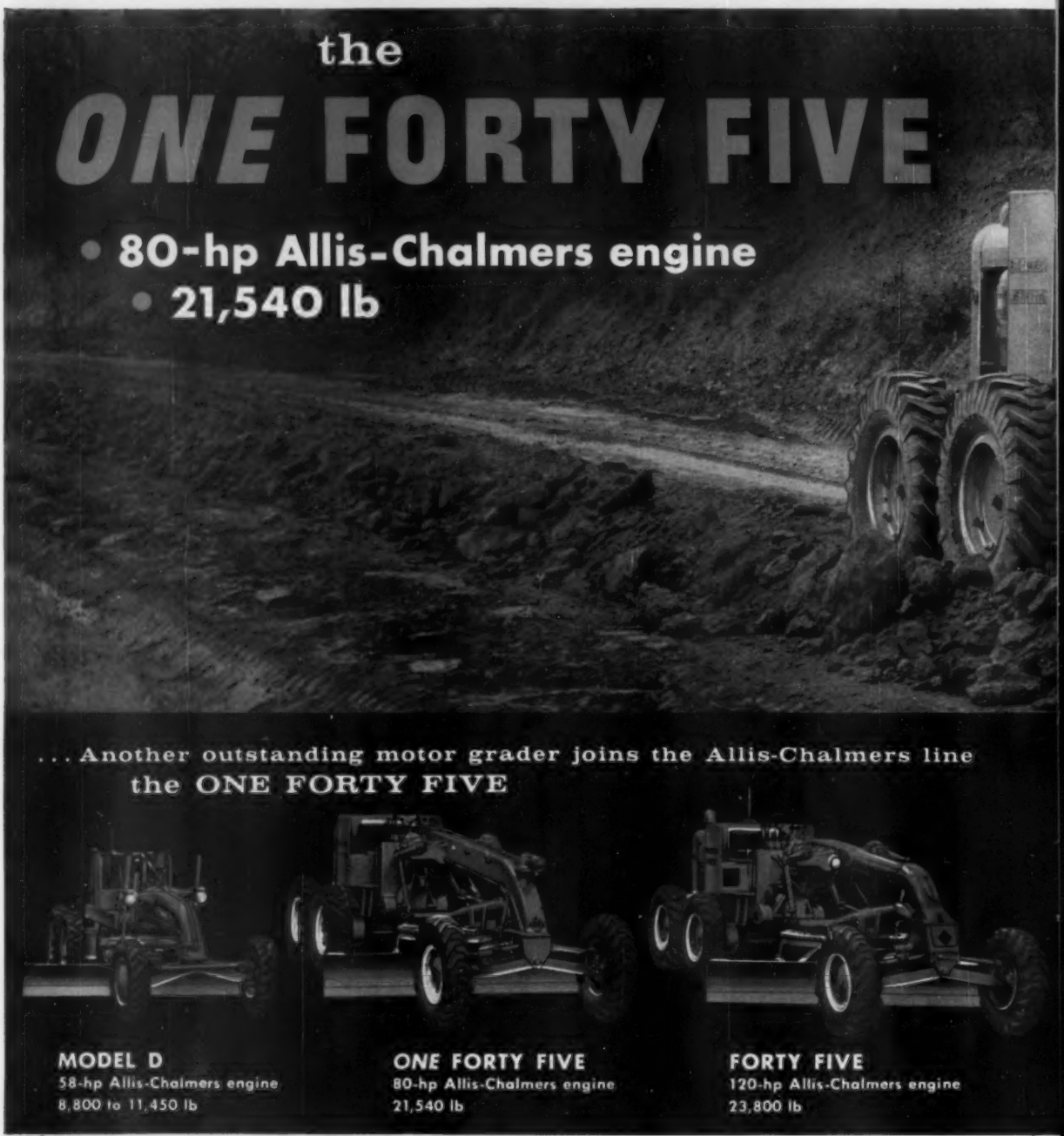
Heart of refrigeration plant is this pair of Worthington 6-JA-6, 980 RPM compressors.



Gage panel separates ice finisher storage area from brine circulation and condenser units.

Allis-Chalmers announces a new motor grader in the 80-hp class

—designed specifically to meet the grading needs of your community



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BEST BUY IN THE MEDIUM-POWER FIELD

- Heavy-duty throughout at a budget-saving price.
- Designed for city, township, county, state road work—production grading, oil mixing, scarifying, bank sloping, even cutting flat bottom ditches.
- Retains the widely-accepted characteristics and performance features of the 120-hp Allis-Chalmers FORTY FIVE grader.
- Offers the best combination of operator features of any grader near its size.

Operator advantages no other medium-priced grader can give you . . . "wide-open" visibility . . . over-the-circle lift cases . . . suspended pedals and exclusive no-kick, toggle-type controls.

Power for high production. Husky, high-torque Allis-Chalmers diesel engine handles overloads without shifting down . . . geared for good range of travel and working speeds.

Load-handling ability second to none. The new *ONE* FORTY FIVE has a 26⅛-inch-high arched front axle—and highest throat clearance in its class. You get more dirt to the ROLL-AWAY moldboard and move it with efficient rolling action that uses less power.

See the new *ONE* FORTY FIVE motor grader at your Allis-Chalmers dealer's. Check its dollar-stretching price. Then check its 80 hp and 21,540 lb on an actual demonstration. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.

ROLL-AWAY is an Allis-Chalmers trademark.

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PARCOA

Off-Street, Controlled Parking Lot Systems

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Now . . . with Parcoa Systems . . . parking can continue day and night, *smoothly, safely, quickly* with NO INTERRUPTIONS . . . NO CONFUSION . . . NO OVER-CROWDING.

- Designed by engineers who have studied off street parking problems to give you every possible benefit.
- Affords complete installation and operating simplicity. PARCOA gives you the answer to both controlled parking and good income.
- A PARCOA system means LOW FIRST COST . . . LOW OPERATING COST . . . an operation that actually PAYS FOR ITSELF. Your revenue is protected at all times.

Here is automatic parking that assures 100% collection . . . that means ease of maintenance . . . that has proved itself in the service of business, industry, hospitals, schools and municipalities.

Before deciding on a parking control method or installation of meters . . . investigate PARCOA . . . learn the many benefits and the advantages . . . the simple answer to parking problems.

Find out how PARCOA parking gates can solve your problems. Write today for Bulletin No. 580.

Choice territories available. Distributor inquiries invited.

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These control types give you a choice of individual or combination of controls to fit your needs.

CODED CARD-KEY
for cars parking on monthly or reserved basis.

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for controlled transit parking.

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for merchants restricted free parking service.

TIME-DATED TICKET DISPENSER
for automatic self service in merchant participation parking.

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casing slab of carefully screeded concrete containing a relatively fine coarse aggregate (¾-inch crushed trap rock) was placed, and the top dressing floated to a smooth level surface.

This encasing slab is monolithic and free-floating except at the concrete header trench, from which it is separated by a 2-inch expansion-contraction joint. Coil legs are led through the header trench wall in pipe sleeves so that free movement of these coils is allowed during temperature pulldown.

Water is sprayed over the surface of the encasing slab, freezing in layers until the ice is built up into a smooth, uniform blanket approximately 1½ inches thick.

Refrigerating Equipment

The refrigerating system is an ammonia-refrigerant, brine-circulated installation by the Worthington Corp. All equipment is operated from a single control panel on 208-volt circuits.

Two 980-hp compressors are pulled by two 100-hp, 1,180-rpm motors, refrigerating 1,800 pounds of ammonia. Brine circulation is by two 40-hp motors pushing two 1,750-rpm, 60-cycle, 980-gpm pumps.

Accessory equipment consists of a 15-hp, 460-gpm pump for cooling tower operation, a 7½-hp, 550-rpm motor driving the cooling tower fan, a brine cooler, a condenser, a make-up tank for water and a receiver for ammonia. In addition, a brine tank with a capacity of 2,000 gallons was installed. The normal brine load in the system is about 1,500 gallons.

Operation and Maintenance

The rink is operated by the Department of Recreation. All revenues derived from skate rentals, refreshment concessions and ticket sales go into the general city fund. Admission prices are designed to give preferential treatment to residents, and there are periods on Saturday mornings when resident children are allowed to skate free.

The city maintains a full-time operator for the plant, as well as a rink manager and ticket-taker. Other maintenance duties are performed by regular department personnel on a time-allocated basis. Removal of snow from the storage area is handled periodically by the road crews of the Department of Public Works.

The plant operator is employed by the city in other capacities during nonskating seasons.

7-gang mower: Roseman

New, low-cost and

IH-TOUGH...

The International® 240 Utility tractor

Here's a new power size in the International line—powered and priced especially for mowing and other maintenance work of similar horsepower requirements. It's the new International 240 Utility with 38.5 engine hp* for low operating cost, combined with characteristic IH built-in brawn and stamina for day-in and day-out dependability.

Matching its standout styling is a choice of options that lets you match the 240 Utility to your specific job requirements . . . power steering; hitches for 2- or 3-point equipment; engine-mounted Hydra-Touch pump or drive for front-mounted pump . . . up to three Hydra-Touch valves for controlling time-saving combinations of mounted equipment.

Ask your IH Dealer to demonstrate the new 240 Utility tractor . . . or others in the International line, 12.8 to 90 hp*. For name of your IH Dealer and complete specifications, write International Harvester Company, Dept. AC-2, P. O. Box 7333, Chicago 80, Illinois.

** Bare engine hp at standard sea level conditions.*

Famed International No. 23 cutter-bar mower can be mounted in combination with International Wagner loader. Or, use the No. 23 in combination with rear-mounted, 3-point rotary mower.

Backhoe-dozer: International Wagner

High weight-to-power ratio gives the new International 240 Utility unusual traction for a tractor of this power rating—there's ample built-in brawn for trenching, loading, and dozing.

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INTERNATIONAL HARVESTER *Dealer*

International Harvester Company *products pay for themselves in use*—Farm Tractors and Equipment . . . Twine . . . Commercial Wheel Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois

THE POINT OF NO RETURN...

HOW MANY WILL PASS IT ON YOUR HIGHWAYS TONIGHT?

A barely defined center line . . . the absence of a no passing stripe . . . and a motorist commits a fatal error of judgment. Unaware of the sharply dipping roadway and the oncoming car it conceals, he makes his move. In the next instant, the approaching auto is revealed . . . too late . . . he has passed the point of no return.

Properly laid pavement markings reflectorized with Cataphote Waterproof Reflective Traffic Beads can materially reduce night-time traffic fatalities . . . in fair weather and foul. Many traffic engineers consider Cataphote Waterproof Beads one of their staunchest allies in a never-ending struggle to make streets and highways safer. And . . . a nationwide network of Cataphote Supply Centers assures them of prompt delivery . . . anytime . . . anywhere.

As long as there are roads to drive upon, drivers will err in judgment. Realizing this, the wise traffic engineer uses every means at his command to make existing highways safer. The man who fails to do so, commits the gravest error of all.

Cataphote
CORPORATION

TOLEDO 10, OHIO / JACKSON, MISSISSIPPI

Manufacturers of: CATAPHOTE REFLECTIVE BEADS • CATAFLEX REFLECTIVE COATING • CATALINE REFLECTIVE STRIPING
CATATHERM REFLECTIVE PLASTIC STRIPING • TRAFFIC SIGNS • STREET NAME SIGNS

Dubbed "A Little Bit of London," this arrangement in Harrisburg, Pa., downtown traffic system brings traffic from the upper left, from Fourth St., across Walnut St., and east in a left-hand opposing lane of an otherwise one-way street. Traffic turns left (lower right) to go north on Commonwealth Ave.

White Lines in Harrisburg

IN the capital city of Pennsylvania, cars and trucks go one way, buses go another way unhindered, and pedestrians who formerly risked life and limb in blissful disregard of traffic now stay safely within the confines of pedestrian crosswalks, springing forward in a protected interval when the signals flash *Walk*.

Beginning on the quiet Sunday of August 31, 1958, followed by the Labor Day holiday on Monday, the traffic changeover was in full swing by September 2. Within a few days came the reaction of motorists, merchants, bus company, newspaper, pedestrians; everybody—almost—thought it was fine.

Six months later, with few dissenting voices, the citizens still think it is fine. They've even given the affectionate "Little Bit of London" title to an ingenious device introduced by Eugene L. Simm, director of Harrisburg's Traffic Engineering Bureau, to work east-bound traffic into a block of otherwise one-way, west-bound major streets.

Essentially, Harrisburg's master traffic plan, devised by Director Simm to ease the traffic and traffic-begotten ills of crowded, narrow downtown streets, consists of converting practically all streets to one-way traffic, with an opposing lane for buses on the principal shopping street. Most of the $100,000 investment went into signal equipment, with the latest in flexible traffic signal control devices, signs, and a liberal application of Prismo reflectorized street marking materials.

Tough City for Traffic

Harrisburg has more than its share of problems to plague a traffic engineer. On the west it borders on the bank of the mile-wide Susquehanna River, connected to the heavily settled West Shore communities of Camp Hill, Lemoyne, New Cumberland and Wormleysburg by two narrow, antique bridges dating back to the pre-Model T era; one modern bridge that speeds traffic from busy U. S. 11 and 15 at a 50-mph clip onto the city's two major north and south arteries; and one modern bridge being built.

Adding to the woes are the capitol buildings in the heart of the city, nonthrough streets, streets that vary in width from block-to-block, railroads, and intensely built-up business and residential sections.

When Director Simm moved to Harrisburg in 1956, making the city the fourth in Pennsylvania with a traffic engineering bureau, he bought the cheapest white paint he could find, and started putting down street markings as fast as the city's secondhand, undersized marking machine could lay them. This was his first, and almost his last act as traffic engineering director. With the first rain, the paint lines became

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NEW ROCKWELL M-I PARKING METER

with all new, stainless steel "guts" for trouble-free operation and it takes 5 coins through a single slot.

If you want manual meters, check these features that will assure you better traffic control at far lower cost:

- **Single Coin Slot** takes 1¢, 5¢, 10¢, 25¢, and tokens.
- **Stainless Steel** working parts resist wear —stop corrosion.
- **Greater Visibility** with new, big violation flag . . . easy to patrol.
- **Easily Accessible:** entire mechanism exposed with turn of the key.
- **Interchangeability:** "unitized" door and mechanism fit Dual automatics.
- **Tamper-proof** design rejects paper clips, etc.—gearing completely protected.

And the famous Dual tradition of rugged construction and clean, simple design that has made Dual the leader in metered traffic control devices.

The new Rockwell-built Dual Manual Parking Meter makes the line more complete than ever before. No matter what your needs, no matter what your preferences, there is a Rockwell-built Dual Manual, Automatic or Dubl-Dual Automatic to help you get better traffic control, increase parking meter revenue and slash maintenance costs. Write for complete details: Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.

A few turns of key exposes mechanism for fast, easy maintenance. Dust-proof housing covers brass clock works.

See how the new violation flag is more easily seen . . . this meter has 3-way out-of-order signal.

DUAL PARKING METERS
another fine product by
ROCKWELL

slick as glass and, as Mr. Simm puts it now, "People hit bottom all over town!" A belated appreciation of sand at certain locations saved the day, and Simm's job.

Simm gained converts, however, and starting from his initial budget of $30,000, he has accomplished the near-miracle of having this city of thrifty Pennsylvania Dutch citizens increase his department allocation to a hefty $216,000 this year—of which some $100,000 went into the traffic changeover.

By this time, Simm had acquired two self-propelled spray-type Wald marking machines, Models 8T and 12. He used them to convert Market Street, a major east-west arterial, into three traffic lanes, doubling capacity morning and evening rush hours by reversing the center lane.

Pavement markings and planning also helped to change busy Market Square from the city's greatest multiple traffic hazard into a nearly normal intersection, with the four quadrants neatly marked off into metered parking spaces, loading zones and bus stops.

About half the people coming downtown ride public buses. In fact, all modes of transportation had to be accommodated. A feature is conversion of the downtown area into a pattern made up primarily of one-way streets, with one lane separated on a major street to allow buses to operate in an opposing direction.

Bus stops have been located so that other traffic can continue to flow without interruption. Parking has been eliminated on some streets, is restricted on others. Parking spaces were made longer to accommodate the newer, lengthier offerings of Detroit. Parking meters with a 10c-per-hour rate sprouted where all-day parking, free, had formerly prevailed. Enforcement was stepped up. Uniformed "Meter Maids" patrol the meters and issue tickets.

Traffic Regulates the Signals

Heart of the new system is the traffic signal control equipment, consisting of traffic sampling stations, a traffic-analyzing master control, and intersection controllers.

The sampling stations are radar-type traffic detectors utilized at three representative locations in the street pattern. One samples inbound flow, another outbound flow, and the third samples circulating flow in the downtown area. These keep the master control informed of traffic volume in the three traffic flows.

The master control receives information from the sampling stations, digests this, and adjusts the timing arrangements at the intersection controllers. Timing changes affect only the "green" intervals; pedestrian controls and vehicle clearance periods remain constant.

The intersection controllers change constantly to best serve present traffic flows.

The *Walk* and *Don't Walk* traffic signals were viewed with a jaundiced eye when installed. "Nobody'll pay any attention to them," the song went. But pedestrians did pay attention. They paid more attention when traffic police started calling their attention to infractions. They swung fully into line when minor changes were made to speed up pedestrian traffic, and not keep folks waiting for what seemed hours.

"Our major flow patterns in the downtown area are about stabilized," Director Simm says. "We're making some changes and modifications in our secondary flows, and we're working toward a broad traffic improvement plan for the whole city."

Director Simm places great dependence on pavement markings, using them to channel traffic into proper lanes, there to be controlled by signals; to mark off channelization islands and pedestrian haven areas; and to confine shoppers into carefully spaced crosswalks.

Twenty-four-hour effectiveness as well as an "upright" pedestrian habit is assured by utilizing Prismo "drop-on" pavement marking materials. Both the Wald marking machines and Prismo reflectorizing materials are manufactured in Huntingdon, Pa.

With the downtown plan now in effect, Director Simm expects to extend better marking, signing and signal control to busy arterials throughout the city; and to integrate traffic flows from outlying residential areas into the downtown flows.

Eugene Simm, Traffic Engineering Bureau director, checks the Prismo Lifeline spread by the Wald marking machine.

"Walk" and "Don't Walk" signals work in Harrisburg.

PRISMO

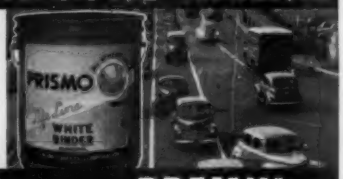
GREATEST NAME IN REFLECTIVE MARKING

For Permanent-Type Installations . . . . . PRISMO PLASTIX

Most durable of all reflective materials for cross-walks and safety zones. Superior quality thermoplastic is impregnated with highly reflective glass spheres and supplied in varying lengths, legends or the new Plastix Discs. Sections are permanently affixed to pavement surfaces by a strong plastic adhesive. Application is fast, durability remarkable. And Plastix shines its best where traffic is heaviest. Send for folder PX56.

For Bright Reflective Striping . . . PRISMO MUNICIPAL LIFELINE

The only reflective striping that meets all municipal requirements. Quickly applied . . . quickly dried, reducing traffic tie-ups to a minimum. It withstands constant strain of heavy 24-hour traffic, gives *immediate* reflectivity, stays clear and brilliant night and day for many months. The answer to municipal marking problems. Send for catalog 354.

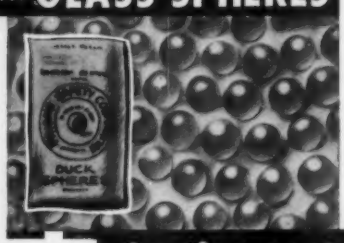


For Those Who Prefer Reflective Compounds . . . . . PRISMO PREMIX

A premium reflective compound for pavement striping, with spheres and binder ready-mixed for latent reflectivity. Can be applied directly from the drum . . . the Prismo glass spheres are so expertly distributed that the mixture may be sprayed, hand-painted or applied with any type of standard equipment. Anti-settling. Send for catalog 354 today.

For Reflectorizing Your Own Paint · Moistureproof GLASS SPHERES

The *original* reflective glass spheres that give traffic 24-hour protection. They are brilliant night and day, make street markings last longer than plain traffic paint, have more uses, save municipalities money. For day and night street lines, nothing surpasses glass spheres by Prismo. You have a choice of two types: Prismo *Moistureproof* Glass Spheres represent the world's finest quality. Prismo *Standard Quality* Glass Spheres available also for excellent performance at low cost. Send for the new illustrated folder GS58.



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- STOP BARS
- LEGENDS
- PARKING AREAS
- SAFETY ZONES

- CENTER LINES
- LANE LINES
- INTERSECTION MARKING
- AIRFIELDS
- PARKING AREAS
- SAFETY ZONES

- CENTER LINES
- LANE LINES
- INTERSECTION MARKING
- AIRFIELDS
- PARKING AREAS
- SAFETY ZONES

(Refractive index 2.00-1.68)

- SIGNS
- WARNING MARKERS

(Refractive index 1.50-1.55)

- LANE LINES
- INTERSECTION MARKING
- AIRFIELDS
- PARKING AREAS

Prismo Safety Corporation
Huntingdon, Penna.

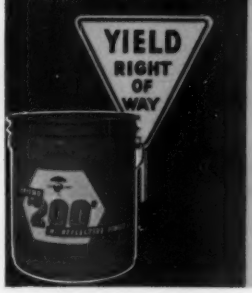
Please forward immediately the following illustrated literature (check numbers desired) ☐ **PX56;** ☐ **354;** ☐ **GS58;** ☐ **P256**

NAME_____

CITY_____

STATE_____ **POSITION**_____

Specify your signs in PRISMO '200'



The sign finish with the highest refractive index ever attained. Also gives you soft-glow legibility at both long and short ranges. Its initial low cost and easy application and maintenance provide greater across-the-board economy on your signing program. Moistureproof. Send for Bulletin No. P-256.

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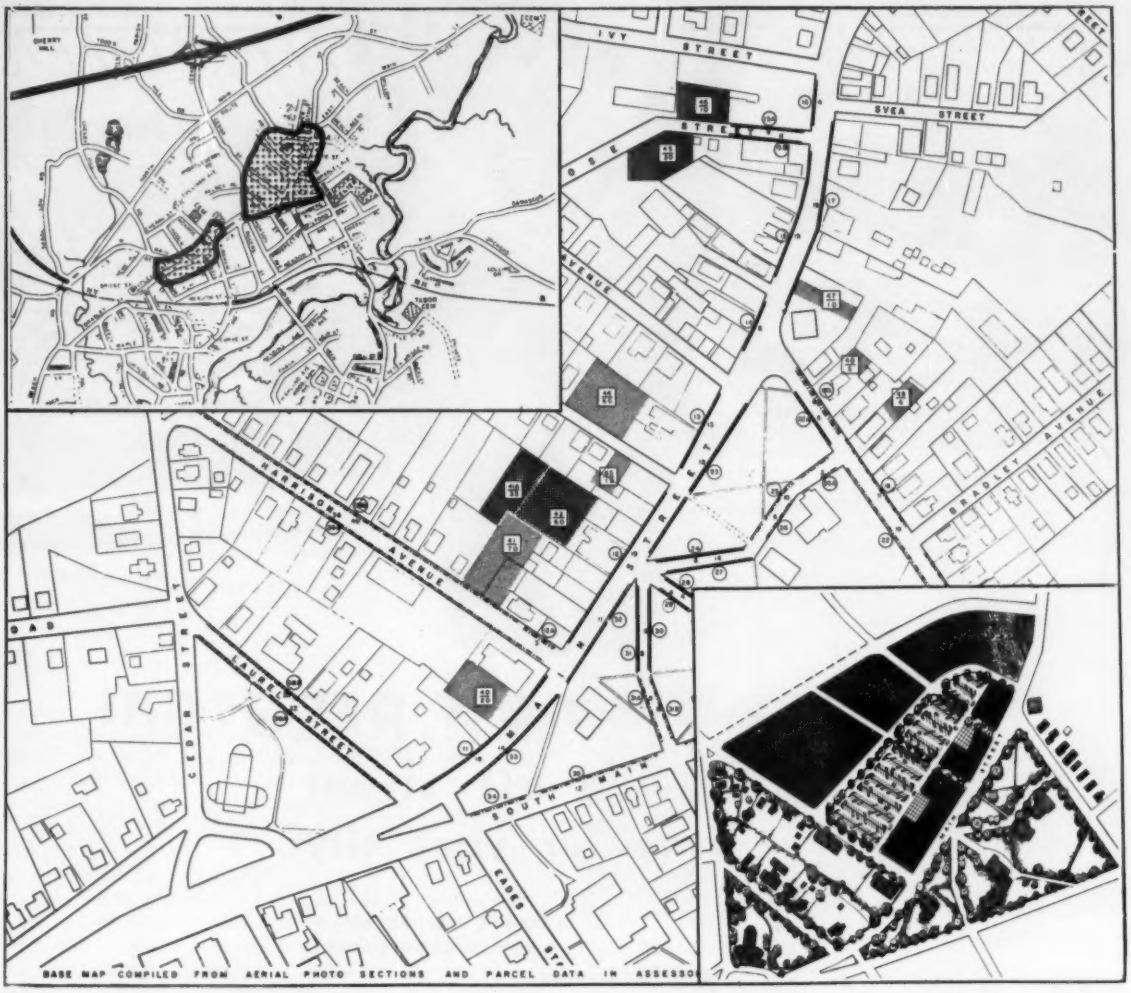
Huntingdon, Pennsylvania



The map shows existing parking facilities as gray; dark spaces are improved or proposed parking facilities. Insert at lower right outlines the proposed improvements to the shopping center; that at upper left shows the relation of the town to the Turnpike.

Branford, Conn. Makes Turnpike Pay

By DAVID S. JOHNSON
Parking and Zoning Commission
Branford, Conn.

COMPLETION of the Connecticut Turnpike and the Oak Street Connector was expected to increase the number of people seeking residences in Branford, Conn. A study of the town's shopping center was made by S. Spielvogel and Associates, New Haven, Conn. This article will sketch what was proposed and accomplished in two years.

Main Street was devoted both to circulation and parking, and was further confused by pedestrian cross-traffic. Street widths, already inadequate, were diminished because two lanes were set aside for parking.

The problem was how to develop and expand the Branford Shopping Center. The method recommended was twofold: to make better use of existing facilities while initiating measures required to assure the development of a well-functioning shopping center.

Three major traffic arteries converge on the central business district: East Main, West Main, and Montowese Streets. Vehicles approaching the Branford Shopping Center from West Main Street parked on the southern side of Main Street where possible, or entered the roadways of the Green in search of a parking

First on the new program

providing off-street parking for your city

- Success of your proposed development is dependent upon public acceptance of the parking control equipment installed.

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space. Vehicles approaching from East Main or Montowese Street attempted to park on the north side of Main Street or searched further, contributing to the presence of too many vehicles in the district.

The Turnpike

Branford is serviced by one semi-interchange and by three full interchanges. Proceeding in an east-west direction these are: the Branford Connector, interchange at Cedar Street, interchange at East Main Street at a point near Route 139, and interchange at Leete's Island Road. Cedar Street provides a direct and immediate access facility from the Connecticut Turnpike to the Branford Shopping Center. The full usefulness of this link from the Turnpike will depend on the quality of retail facilities—up-to-date merchandising, attractive stores (both interior and exterior), convenient access and parking—offered by the Branford Shopping Center. It is anticipated that the toll facilities near Lake Saltonstall and in Madison will contribute for some time to come to a continued use of local streets within Branford. Therefore, it may safely be assumed that the local market will continue to be largely influenced by traffic conditions on the local street system.

The Branford Shopping Center has many advantages to offer and can play a vital part in the town's growth. This will require the participation of both government and private enterprise. A modernized shopping center benefits both the merchant and the customer and contributes to the general tax base of the community.

Unique Features of Rochester's Parking Ramp

By ROBERT P. AEX, *City Manager*
Rochester, N. Y.

AN EIGHT-STORY 523-car, off-street parking ramp was opened by the City of Rochester, N. Y. and formally dedicated last year.

Among the unique features in this ramp are three automatic passenger elevators, 24-hour Magee-Hale Park-O-Meters, change machines, pedestrian sidewalks and direct entrances into one of Rochester's largest department stores. The new unit is part of a comprehensive off-street parking program which, together with an arterial highway program, is aimed at keeping our downtown healthy.

Evidence that we are on the right track is given by the women. They are the key shoppers in any downtown area. We had hoped that a high percentage of the cars entering this latest type of ramp would be driven by women. But we never expected that as many as 65% would be women drivers.

To estimate that cars would average as many as 2½ persons each would be quite optimistic. Believe it or not, our experience to date shows that slightly in excess of 3 persons per car are being handled by the new parking facility.

Another astounding fact has to do with turn-over, which is a good guide. On Tuesday, April 8, our new unit, with only 6 of the 8 floors in operation, handled 3,000 cars, which was more than the equivalent of a six-time turn-over for the 330 spaces involved.

Average daily volume for a five-day shopping week is currently running about 2,500 per day. We have had several weeks when we have handled as many as 13,000 cars in a week. Surveys indicate that the unit is pulling shoppers into our downtown area from communities as far as 50 miles away. We are also experiencing considerable business from Canada and the presence of cars from the vicinity of Hamilton, Ont. is quite common in the parking ramp, especially on Canadian holidays.

The parking facility is neat-appearing and has been painted with the attractive city colors of blue, white and gold. The 1,600 fluorescent light fixtures in the building present a fine picture at night.

Metered parking under fluorescents in parking ramp.

The 8-story ramp garage features Westinghouse elevators, Magee-Hale Park-O-Meters, and Standard Change Makers.

Up to 163 Degree Spread — Up to 236,000 Candlepower: Now in

New CROUSE-HINDS Mercury Floodlights

Plus 6 Outstanding Advantages Never Before Offered in Mercury Floodlights of this Wattage

New—700 to 1,000 watt mercury floodlights with the widest beam-spread on the market . . . up to 163°. Or the brightest . . . 236,000 candlepower concentrated in a 75° solid angle! Complete with ballasted assemblies that will start lamps at —30° F. offering a further choice of three different reflectors and four different lenses (including a spun-sealed plate glass lens) to adjust the beam-spreads and candlepowers to your particular needs. All using either clear lamps for brightness, or phosphor-coated lamps for color enhancement. And all offering rear-door relamping and positive locking in open position.

Mercury Floodlighting Is Here to Stay

No other floodlight lamp approaches mercury for long burning hours . . . for economy of cost and labor in relamping. And no other mercury floodlight approaches these new MVF's for convenience of relamping, aiming, utilization factor and maintenance of output over a long period of burning. Other lights in the Crouse-Hinds range of floodlights from 250 to 700 watts provide varying beam spreads, intensities and efficiencies.

* For assistance in computing the exact fixtures, wattages and footcandles for your needs, consult your Crouse-Hinds distributor or the Illumination Department at the Factory.

CROUSE HINDS

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Lodi, Ohio Extends a Fluorescent Welcome

By ROYCE EAKEN, *Superintendent*
Lodi Power and Light Company
Lodi, Ohio

LODI, Ohio, with its midwestern interpretation of rural America, is a shining example of how small towns can stem the bypassing and exodus to the larger neighboring cities. This community of 2,100 persons nestles at the intersection of U. S. 42 and U. S. 224. For those traveling west out of Akron or south from Cleveland, the sight of Lodi, with its town square and its brick-faced bandstand, will be welcome. The village sparkles with a new array of fluorescent luminaires encircling the town square.

Lodi's street lighting project is the four-year culmination of the community's determination to stay alive and active. Lodi officials realized that the village needed rejuvenation in order to attract industry and increase commerce. Plans for new lighting were made to fall within an allotment of funds from the operating budget of the Lodi Power and Light Company. Relighting was not to be a simple project because most modern street lighting requires mounting heights of 25 to 35 feet. Lodi then was using 20-foot poles and the funds allotted did not provide for a complete system replacement. Plans were set aside for the time being.

Fluorescent

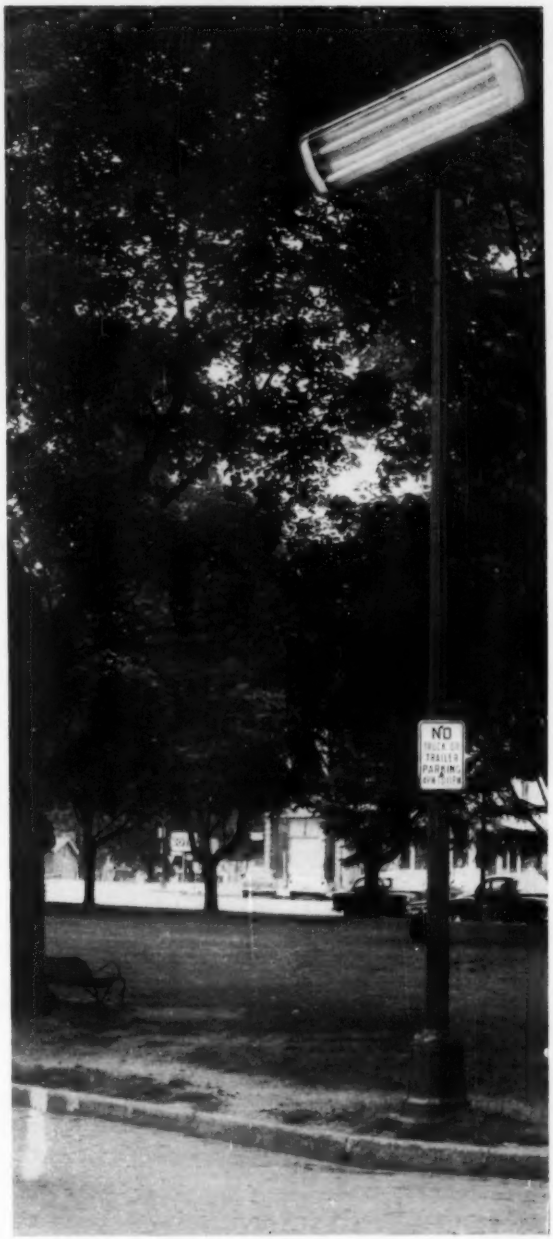
Parallel-to-the-street fluorescent lighting was first mentioned to the Lodi officials in May 1957. Many fluorescent floodlights for area illumination of airport loading ramps were mounted 20 feet from the ground. This was good news and steps were taken to obtain two Line Material 2-lamp, 6-foot fluorescent luminaires for a trial installation. These luminaires were mounted on the same poles used by the incandescent units and arranged parallel to the street.

The solution to the problem was not quite complete, however, for the test installation revealed that 5,700-lumen output of individual fluorescent lamps then available limited unit output to 11,400 lumens. As the older incandescent lamps were rated at 10,000 lumens, the small gain in illumination was not sufficient to make relighting practical. It looked as if Lodi was not to be relighted.

Improvement in Lamps

The end of the cycle of solutions and complications finally came when improvements in fluorescent lamps almost doubled their lumen output. This meant two things to Lodi's Public Affairs Committee—the 2-lamp fluorescent luminaires were now capable of emitting approximately 18,600 lumens and the long-awaited lighting project would be a reality. Twenty-two parallel-to-the-street fixtures are now installed in Lodi and the result is an average light intensity of 1.9 foot-candles on the street surface.

Lodi is well pleased with this project. Village officials as well as the citizens extend a welcome hand to all those who wish to take part in the benefits that are sure to come.



One fluorescent light emits 18,000 lumens to the 10,000 of the older incandescent lamp.

Brookings, S. D. Emerges from Obscurity to Fame

GONE are the 230 filament luminaires from the streets of Brookings, S. D. (population 8,000). Two-thirds of them were radial wave reflectors. Today every block in town has been lighted to the minimum code level recommended by the Illuminating Engineering Society and the American Standards Association. Of the incorporated communities in the U. S., only 12 are said to have achieved this goal. Brookings did it with 1,148 modern General Electric fluorescent luminaires.

Not only is Brookings a member of the exclusive "code-lighted club," it is also the nation's first all-fluorescent city. Four-lamp, 6-foot fluorescent luminaires are used in the business section, while 2-lamp, 4-foot units were used to supply the residential area with suitable lighting.

In 1952 a special bond issue to finance the relighting of the downtown area was passed overwhelmingly by voters. In planning the small but important midtown lighting installation, the city's commissioners investigated various systems to determine the best for Brookings. They visited several cities, compared filament, mercury and fluorescent systems. Though detecting a trend to fluorescent, they hesitated to proceed without first sampling public opinion. A single fluorescent luminaire was purchased and installed in front of the city library. Public reaction was prompt and favorable. The Board of Commissioners placed an order in 1954 for 34 fluorescent units to replace the outmoded downtown lighting system.

Distribution Lines

Shortly thereafter the city commissioners learned that the city's distribution lines required rebuilding. Faced with this necessity the Board of Commissioners decided to capitalize on the popularity of the new lighting installation and, while rebuilding the distribution lines, extend fluorescent lighting into residential areas.

The new lighting system provides 40 to 60 times more illumination in residential areas than did the old filament units. Total generated lumens for the city is more than 10 times what it was with the old system, 882,000 lumens with the old compared with 9,595,200 with the new.

Yet power consumption has increased only five times from an installed capacity of 50 kilowatts to 250 kilowatts.

In the downtown area, luminaires are installed eight to a block at heights of 30 feet on steel poles. Residential units are spaced 150 to 180 feet apart on one side of the street and mounted on 7-foot brackets at heights of 25 feet. The first 23 fluorescent lights were mounted on Union Metal poles. Since then about the same numbers were mounted on Millerbernd metal poles. An underground wiring system is used in the business section with overhead wiring in residential areas.

The average maintained level of illumination in downtown streets has been boosted from 0.2 footcandle to 1.2 footcandles. On residential streets, the average level ranges between 0.2 and 0.3 footcandle, depending on the distance between poles. Prior to the installation of the modern fluorescent luminaires, these streets registered a dim 0.005 footcandle.

During the first two and a half years of service, it was not necessary for the city to replace a single lamp. With the old filament system, comprised of just 230 units, it was necessary to make a replacement somewhere on the line almost every day, according to City Distribution Superintendent Henry Shirkey.

Said Police Chief J. J. Connelly:

It is one of the finest improvements ever made in Brookings. The new lights have greatly reduced the night work of the police department. We can see up the street three blocks or more, thus cutting down patrolling. Pedestrians are clearly visible two to three blocks away and our intersections are safer now that they are well lighted.

Electrical Commissioner William H. Gamble summed up the city's attitude toward the lighting system when he commented:

If the addition of these new lights save the life of one child, the investment will have been worth while. Aside from this obligation to all of our children we also have an obligation to the students of South Dakota State College located here.

Residential area of Brookings, S. D., after relighting.

Commissioner of Streets W. J. Burdett offered another example of the value of the new lighting system:

The new lights help substantially in the removal of snow by making it possible for the workmen to see much better while on the job. The same holds true for sweeping the streets in summer, which, like snow removal, is done at night. Motorists were liable to run into a piece of equipment on dark streets and workmen always had to strain to detect parked cars before all our streets were properly illuminated. Now things are easier and safer for all of us.

Looking at the subject from every viewpoint, Brookings is pleased and happy with the new street lighting that has brought the community out of darkness to a position of honor as one of the nation's best-lighted cities.

NEW MODEL 507

TRAFF-O-MATIC® CONTROL

Provides Semi-Actuated Signal Control in its Most Advanced Form

Model 507 combines the maximum of flexibility obtainable in semi-actuated control with many new design features. Emphasis is on reliability and accuracy of operation, simplicity and ready accessibility of all components.

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- **Printed circuit panels and line switch are jack connected**
- **Standard commercial high vacuum tubes are used**
- **Built-in directional detector relay permits direct connection to HRD Detectors**
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- **New easy-open case is finished in textured green**

For further details, write for Bulletin C-123

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AUTOMATIC SIGNAL DIVISION
EASTERN INDUSTRIES, INC.
NORWALK, CONNECTICUT

Reflective Pavement Marking... what to look for when you buy it

As an engineer, you quite naturally want quality of performance in the pavement marking material you lay down. Yet performance alone cannot be the sole yardstick in evaluating quality because of the cost factor involved. The final selection or recommendation you make, then, actually becomes the result of evaluating all facets of performance in the light of dollar value received.

To help you in this important evaluation, here are a few facts about reflective pavement markings in general, and one product in particular, pre-mixed, "Centerlite" Reflective Compound.

Modern striping unit in Milwaukee, Wisconsin, shows quick, easy one-step application of "Centerlite" Reflective Compound. Reflective beads are pre-mixed in striping compound. Rugged film holds beads in tight grip. Beads give a hard, long-wearing surface to resist traffic wear. You get durability in both reflectivity and in the stripe. You get what you want—performance and economy.

Pre-Mix Durability

Of the two basic types of reflective marking materials, the pre-mix type (where reflective elements are mixed in the compound by the manufacturer) gives you a primary advantage of greater durability. In fact, "Centerlite" Reflective Compound has repeatedly demonstrated its superiority in this department by lasting up to three times longer in actual on-the-pavement tests than other types of reflective markings.

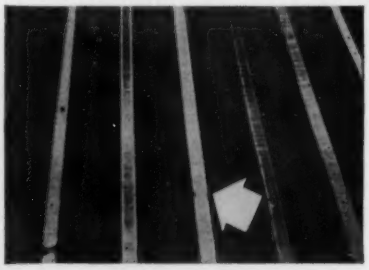
Why the longer life? Because the reflective beads are distributed uniformly throughout the stripe and held in the grip of a rugged film. The characteristics of this film are such that the tightly gripped beads don't flick out easily. Traffic wear is minimized because the film guards and holds the beads in place, and the beads, in turn, provide you with a hard, long-wearing surface.

This durable double-action is an exclusive of pre-mixed striping. Any other reflective stripe type soon loses surface beads to traffic wear, lessening resistance to abrasion and also diminishing its reflective quality as time and traffic pass. The point of durability is a primary advantage of the pre-mix material because it helps give you a *lower* cost per foot per day of useful life. It is certainly one of the things to look for when you buy.

One-step Application Ease

Another significant advantage of pre-mix striping is in application. With "Centerlite" Compound, you have only one item to order, to store, to handle. And because the beads are already in the mixture, you apply the stripe in one fast pass. Humid or windy days pose no problems. The stripe dries quickly . . . and you have reflectivity over every inch of marking, whether on flat or super-elevated planes.

This application ease, too, contributes to lower cost per foot per day of useful life. "Centerlite" Compound can also be easily applied by almost every striper. No settling in the tank, no extra gun wear, no gun clogging.



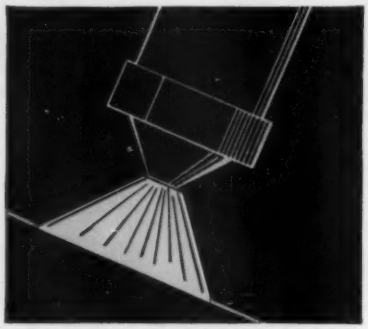
All lines applied on same day. Photo taken after 8-month test proves performance of "Centerlite" Reflective Compound (arrow).

Lifetime Reflectivity

From the safety standpoint, pre-mixed "Centerlite" Compound gives you advantages in lasting brightness that other types of reflective markings can't match.

The reason for this, again, is the fact that the reflective beads are all through the striping compound. So, when your line is laid down, wherever there is paint, there is reflectivity. No chance for spotty, unreflective areas.

As the stripe wears, and they all do, new beads in pre-mixed "Centerlite" Compound are constantly exposed. Reflectivity *lasts the full life of the stripe.* You get, combined with the *lower* cost per foot per day of useful life, the *highest* performance factor. And this is the combination that means you get the performance you look for and the economy you demand.



New "Centerlite" Compound gives you easy, one-step application. Pre-mixed reflectivity stays uniform even on superelevated sections.

Your 3M Distributor or Representative will be happy to supply you with more facts as well as with "Centerlite" Compound itself. Or write to the 3M Company, Dept. AB-29 St. Paul 6, Minnesota.

REG. U. S. PAT. OFF.

CENTERLITE

BRAND

REFLECTIVE COMPOUND

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MINNESOTA MINING & MANUFACTURING COMPANY—Where RESEARCH is the key to tomorrow

Lighting Catches Up With Franklin Park's Growth

By W. J. McNERNEY
Village President
Franklin Park, Ill.

Night and day with Franklin Park's lighting.

NO longer a wide spot in the road enroute to Chicago, Franklin Park, Ill.—3,000 in 1940; 9,000 in 1950; and now 16,000 people—has always welcomed industry and, indeed, industry has found the village attractive. Low tax and water rates, good transportation, favorable industrial sites, a frugal mayor-council government, up-to-date schools, and now, a modern, well-lighted retail district are some of the attractions.

Visitors are impressed and passersby pause for a second look at the safely illuminated streets where shadows no longer exist. The results of good lighting are far-reaching. Several enterprising merchants have erected buildings to meet the new business potential. Other businessmen have been instilled with a new confidence and have set about redecorating their storefront displays to match the imposing view on the outside. Motorists, confronted by the spectacular sight, often slow down and are better able to see pedestrians crossing the street or discern automobiles pulling away from the parking spaces.

The system that has so greatly changed the complexion of Franklin Park blends in harmoniously with the surrounding landscape and presents a pleasing daytime appearance. The 64 fluorescent luminaires, manufactured by Line Material Industries, Milwaukee, are mounted 30 feet above the ground on octagonal concrete poles with four-foot brackets. They are set in a staggered pattern and spaced 70 to 80 feet apart.

As dusk approaches and the lights are turned on, the 22,800 lumens, emitted by the four high output lamps in each luminaire, establish and maintain an average light intensity of 1.1 to 1.5 footcandles on the surface, a pleasing appearance enhanced by running the 120-240-volt multiple electric circuit underground.

Engineering was performed by the Edwin Hancock Engineering Co., and the installation was completed by the H-H Electric Co.

Brightest Whiteway

FIVE blocks of 69th Street, Upper Darby, Pa. have replaced their 1927 vintage ornamental post-top luminaires with 66 General Electric 1,000-watt clear mercury lamps. The initial footcandle level is 12.6 and the average maintained footcandle level is 7.6. Has any city brighter lights than these?

The luminaires are mounted on 8-foot bracket arms and spaced oppositely at 90-foot intervals and situated 32 feet above the pavement.

According to R. M. Hoot, general supervisor of municipal sales for Philadelphia Electric Company:

These new units are 11 times brighter than the old luminaires which provided only 0.5 average maintained footcandle. This is by far the nation's brightest street lighting installation.

In a special "lights on" ceremony, William H. Merner, Jr., president of the Board of Upper Darby Township Commissioners, hailed the new street lights as

a long-awaited improvement for our community. We are proud to pioneer this high-intensity street lighting and are certain that these lights—the brightest in the world—will make our streets safer for motorists and pedestrians, aid in cutting down on vandalism and petty thievery, contribute to increased nighttime business activity, and give each of us a greater feeling of pride in our township.

NIGHT VIEW of Darien-Stamford section of the Connecticut Turnpike, with L-M fluorescent luminaires supplying the illumination.

The Connecticut state highway department has made this turnpike an outstanding example of modern highway design and lighting.

New L-M Fluorescent Luminaires Make Connecticut Turnpike Brighter, Safer

An outstanding example of modern highway design is the Connecticut Turnpike, a 130-mile ribbon across the state from New York to the Rhode Island line. Both in design and lighting, safety was a principal consideration, according to Newman E. Argraves, State Highway Commissioner.

The most heavily traveled sections of the highway are lighted for safer night driving. Line Material fluorescent luminaires were selected for the Darien-Stamford section because of their excellent appearance and the efficiency of the reflector design, which appealed to the state highway department engineers.

Line Material, a pioneer and leader in outdoor lighting, offers a full line of equipment—fluorescent, mercury vapor, incandescent lighting, and all accessories and apparatus. L-M's lighting application engineering is an outstanding service.

What's YOUR Lighting Problem?

Tell us your lighting problem. L-M Lighting Engineers will help you solve it—whether it's a highway, a neighborhood street, an airport, a shopping center, a farmyard or a railroad yard. Ask the L-M Field Engineer for bulletins and information; or write Lighting Division, Line Material Industries, Milwaukee 1, Wisconsin. In Canada: Canadian Line Materials, Ltd., Toronto 13, Ontario.

DAYTIME VIEW of the Connecticut Turnpike shows the deep-type 6-foot L-M fluorescent luminaire. Mounting height is 26 to 28½ feet, on 6- to 12-foot brackets, with light centers 30 feet above the highway grade.

LINE MATERIAL® Industries

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PACKAGED SUBSTATIONS • CAPACITORS • REGULATORS • OUTDOOR LIGHTING • LINE CONSTRUCTION MATERIALS • PORCELAIN INSULATORS • FIBRE PIPE AND CONDUIT

Christmas Past In Oakland, Calif.

FIVE major downtown streets of Oakland, Calif. were lighted for Christmas 1958 by the Downtown Merchants Association. The across-the-street type of decorations consisted of scroll frames adorned with red, silver and green garlands interspersed with red and green lights. Attached to each line of scrolls were four illuminated Christmas bells three feet high.

Illuminated street decorations have been sponsored by the Downtown Merchants Association for more than 20 years. In the mid-Thirties, members assessed themselves to pay for the cost of installation of underground wiring and other necessary fixtures.

Christmas 1958 street decorations in downtown Oakland, Calif.

Report From El Paso

PRIOR to 1953, residential street lighting in the City of El Paso, Texas was accomplished by locating a 250-candlepower open face reflector and street light over the center of each intersection, mounted on a span wire. Beginning in 1953, the El Paso Electric Co. began a replacement program converting each of these installations to a mast-arm-type installation wherein the street lighting unit is placed on a six-foot mast-arm on one quadrant of each intersection. This replacement program was completed in late 1955.

This street lighting in residential areas is being installed this way, that is, 6-foot mast-arms on wood poles at one quadrant of each intersection. Street lights in residential areas are installed in El Paso only at the request of the residents or property owners who are affected by the location of the light. Standard petition forms are available in the Traffic Engineering Department of the city and are distributed to residents and property owners requesting street lights in their neighborhoods.

Arterial Lighting

Arterial street lighting is programmed by the Traffic Engineering Department on an individual project basis with approximately 200 mercury vapor units being added each year. Arterial street lights are 20,000-lumen mercury vapor, color-corrected units with luminaires mounted at 30 feet above pavement with spacings from 135 to 165 feet.

In the case of two major arterials, the City of El Paso and the State Highway Department, by contract agreement, participated in the installation and in the maintenance and cost of operation. Except for these, all street light wiring in the city is overhead and the poles are wooden. On the two streets in which the city and state are participating, aluminum poles are used with underground wiring throughout.

On three major streets in the southern portion of the city, high-intensity street lighting has been used as a deterrent to robberies and vandalism. This area is one of extremely dense population and is situated very near the border between the United States and Mexico.

Mercury vapor lighting generally is confined to major business areas and to arterial streets. There are now eight streets comprising a total length of approximately 15 miles which are lighted with mercury vapor fixtures. Six other streets are programmed for additional mercury vapor lighting in the near future.

Allocation of Expense

Under all of our street lighting programs, both residential and arterial, the city absorbs none of the costs of installation, equipment or maintenance. The fixtures, including poles and wiring, are purchased and installed by the El Paso Electric Co. upon authorization and order from the City Council. In return, the city pays a fixed fee per unit, varying for each type of fixture in accordance with its electrical consumption. This policy has been varied for the two projects in which the state and the city participate. In these two cases, a contract was awarded for the purchase and installation of underground wiring, poles and fixtures. In these projects the city and state each paid 50% of the total cost of the projects and continue to pay 50% of the annual operating cost for these projects.

Administration

The city's street lighting program is administered for the city by the Traffic Engineering Department, headed by J. D. Nadon, and by the Industrial Division of the El Paso Electric Co., headed by C. L. Wilson.

RAYMOND L. TELLES, JR., *Mayor*
El Paso, Texas

Revere Urban-Lites provide economical lighting for secondary streets. Splice box in neck makes wiring easy, U-bolt and leveling screws permit accurate, permanent positioning.

REVERE PLANNED STREET LIGHTING

Revere Urban-Lite makes efficient use of 100, 175, or 250-watt mercury lamps for uniform light where lower intensity light is adequate.

The Revere Urban-Lite was especially designed to solve a specific problem — to provide lightly-traveled residential streets with uniform lighting at lowest possible cost. It is smart in appearance, and uses horizontal burning mercury or incandescent lamps for economy and efficiency where high intensity lighting is not required. It is also available wired for plug-in type individual photo-electric control.

Other street lighting problems call for different types of equipment. For every problem, Revere offers high quality lighting fixtures that are specifically designed to provide the most efficient, economical solution. Write for a Revere Street Lighting Catalog.

Other luminaires from Revere's complete line

For heavily-traveled streets —Revere Endoval luminaire uses 11,000 or 21,000 lumen mercury lamps for high-intensity illumination. Reversible slip-fitter for mounting horizontally or with 10° tilt.

For moderately-traveled streets —Revere Star-Lux luminaire uses up to 10,000 lumen incandescent lamps, or 250 to 400-watt mercury lamps to meet varied needs.

Revere OUTDOOR LIGHTING

Revere Electric Mfg. Co. • 7420 Lehigh Avenue • Chicago 48, Illinois (In suburban Niles)
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Absentee Business Ownership—How It Affects Rochester, N. Y.

ROCHESTER, N. Y. has seen at least a dozen local firms merge with larger companies headquartered somewhere else since 1950. During these years, the local Chamber of Commerce has studied the effects of these corporate mergers, and discovered that they have six counts in their favor and two against. The over-all effects of the mergers have been beneficial.

The *plus* factors noted by the Chamber run as follows:

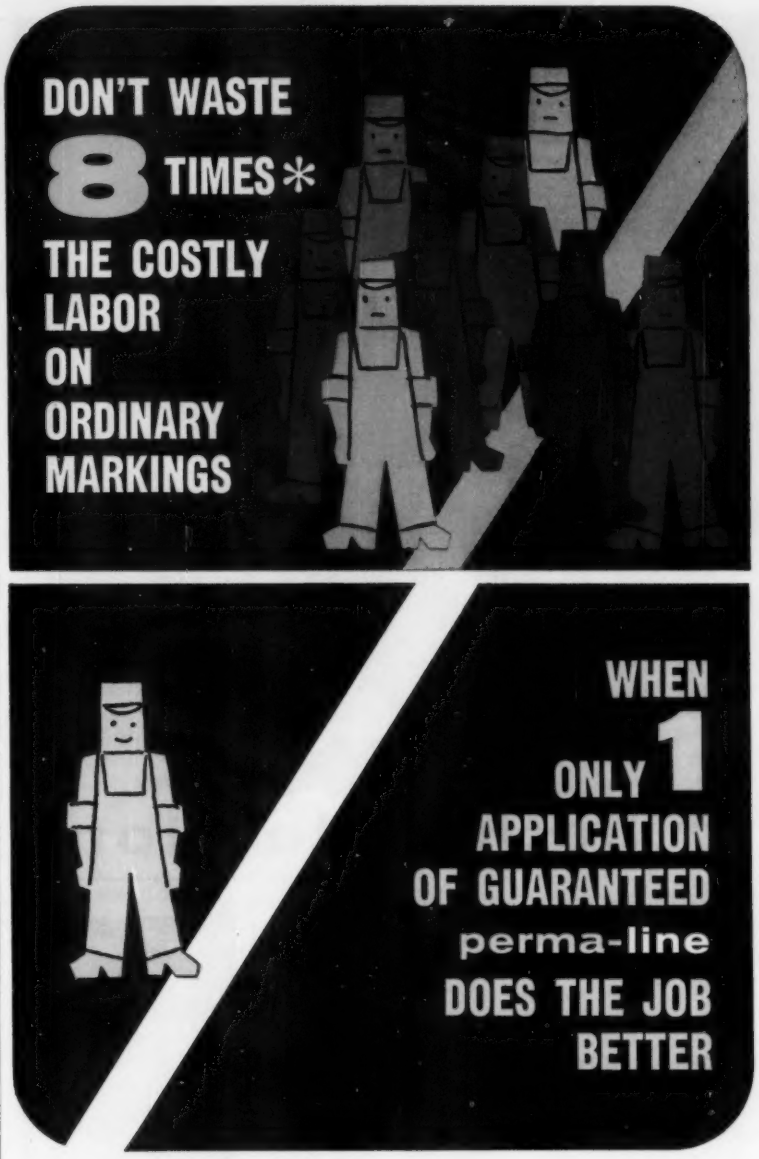
- None of the mergers resulted in closing local factories.
- Practically all local plants involved have begun to manufacture new products.
- Some of the mergers studied have shown greater resiliency during the 1957-1958 recession than has the general business community; none has lagged behind the general economy.
- In the merged companies there has been a net gain of 1,756 jobs.
- In most cases, local factories have increased their electric power consumption since the merger.
- Available statistical evidence suggests increased economic stability from mergers, with the prospect of greater job security and continuing infusion of fresh managerial and technological talent offsetting the danger of absentee control.

On the *minus* side, the Chamber reports:

- Merged companies have not been as ready as locally owned firms to increase their corporate gifts in response to rising Community Chest and similar needs.
- Local commercial banks and insurance companies have lost business because of outside management.

To help maintain a constructive and cooperative relationship with these out-of-town owners, the Chamber, together with the City Council and the County Board of Supervisors have formed an official body that establishes liaison with the management of the out-of-town owners of the Rochester companies.

Sociological difficulties of this absentee ownership were highlighted by Dr. William H. Form, professor of sociology, Michigan State University, at a recent management seminar. Absentee owners, he noted, take less interest in the broad problems of the community, and participate less in civic affairs.



*Guaranteed PERMA-LINE is *safely* on the job, every day of the year, because PERMA-LINE outlasts old-fashioned paint 8 to 10 times.

Highly paid maintenance crews, once confined to heavily-travelled downtown intersections, can now cope with the increasing control and safety problem of newly developed suburbs. You get more coverage, *year 'round coverage*, because PERMA-LINE virtually multiplies your present working force.

RESULT: Economical safety markings you can count on for full-time efficiency and protection.

PERMA-LINE ends traffic snarls because it is quickly and easily applied, sustains full traffic impact almost immediately, actually becomes part of the pavement surface.

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VEON CHEMICAL CORPORATION • 22-09 BRIDGE PLAZA NORTH • LONG ISLAND CITY 1, N.Y.

For free illustrated brochure and the name of your nearest distributor fill in this coupon.

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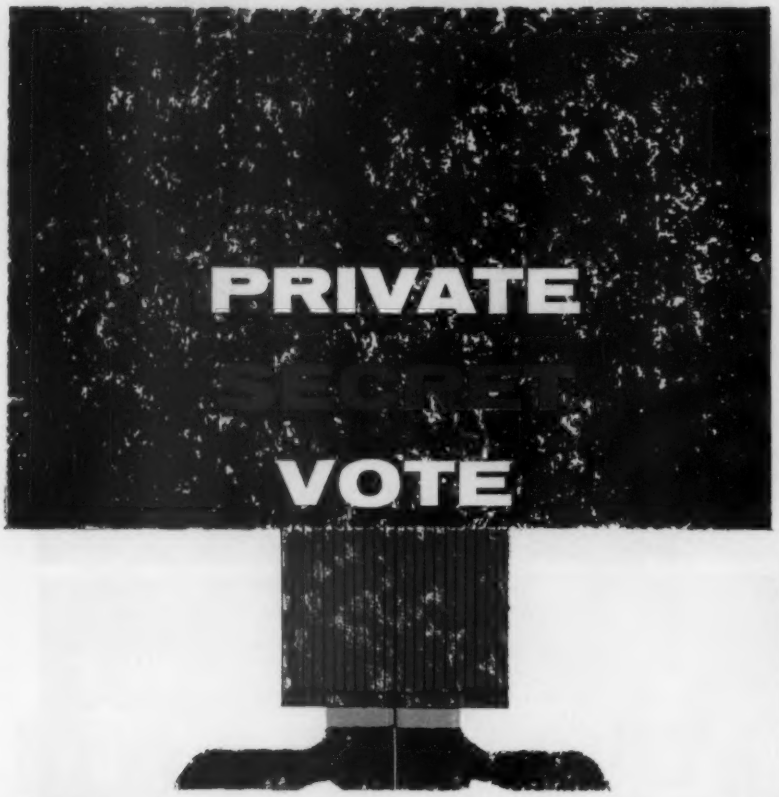
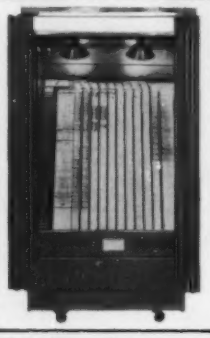


for better elections

Each Shoup Voting Machine forms a self contained, steel-sided voting booth complete with curtains, thereby assuring every voter absolute privacy.

Upon entering, a turn of the voting switch to the right electrically activates the machine and closes the curtains. The voter is now ready to choose his candidates on the ballot, which is scientifically inclined for the best reading angle. The entire interior is illuminated by the machine's permanent lights. After voting selections are completed, a turn of the voting switch back to the left registers the individual votes for the various candidates, returns the voting levers to upright position, and opens the curtains.

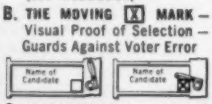
Shoup Voting Machines are designed to fill every ballot requirement and comply with the election laws of all states. They are the only voting machines that duplicate the traditional vertical paper ballot with which voters are familiar. They are fool-proof and fraud-proof, reduce voting costs, and insure greater speed and accuracy of results. Impartial surveys prove the Shoup Voting Machine superior . . . more perfectly designed and constructed to meet the requirements of the voting public. That's why more and more communities, from the smallest to the largest, are using Shoup Voting Machines for better elections.



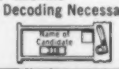
The ABC's of Superiority...

A. THE VERTICAL TYPE BALLOT (see illustration)

B. THE MOVING [X] MARK — Visual Proof of Selection — Guards Against Voter Error



C. INSTANTANEOUS RESULTS BY CANDIDATE'S NAME Directly on the Face of the Machine No Decoding Necessary



27 States Already Use Shoup Voting Machines

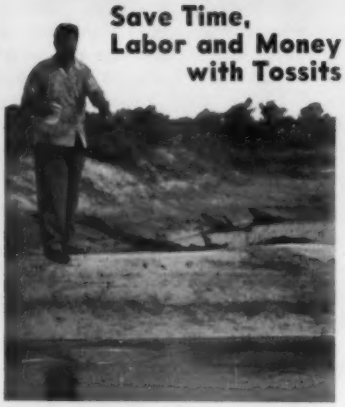
SHOUP

THE SHOUP VOTING MACHINE CORPORATION
41 East 42nd Street • New York 17, New York

the voting machine that looks like a ballot

TOSSITS KILL MOSQUITO LARVAE

Save Time, Labor and Money with Tossits



NO SPECIES IMMUNE!

Gives 100% Kill in All Breeding Places—SWAMPS • CANALS • CATCH BASINS • RAIN POOLS • DITCHES

You simply throw TOSSITS in infested water . . . capsule ruptures and the solution spreads rapidly in all directions forming a film of larvae-killng insecticides over the surface of the water.

YOU CANNOT OVERESTIMATE THE EFFECTIVENESS OF TIME-TESTED, CLEAN, SAFE AND EASY-TO-HANDLE TOSSITS . . . ESPECIALLY IN HARD-TO-REACH BREEDING AREAS!

- TOSSITS make it possible to larvacide areas inaccessible to power spraying equipment . . . and areas hard to reach with hand spraying equipment.
- TOSSITS permit wider distribution of Field Men with consequent savings of valuable time. One competent man can carry several hundred TOSSITS, make his own inspections and do the larvaciding work of five men with hand equipment.
- In a matter of minutes, one man with 50 TOSSITS can larvacide an acre of dense breeding ground . . . or 50 isolated rain pools . . . at an average cost of $2.50.

In Every Instance . . . TOSSITS ARE CHEAPER—MORE EFFECTIVE THAN HAND SPRAYING

Write Today for descriptive literature.

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Sole distributor for Wyco Inc., West Palm Beach, Fla.

Purchase Manual in Three Parts

Issued by District of Columbia

By R. G. WESSELLS
Procurement Officer
Washington, D. C.

THE Procurement Office for the District of Columbia Government has published and distributed Part I of a *Procurement Manual* containing procurement policies and procedures as they apply to agency supply activities. This part of the Manual is in loose-leaf form and contains an index by subjects, a telephone directory indexed by functions with the name and telephone number of employees responsible for each function, a functional chart for the Procurement Office and flow charts on each procedure in which operating agencies participate.

While the bulk of District expenditures result from contracts entered into by the Procurement Office after obtaining competitive bids, provision must be made for the day-to-day small purchase requirements of District services. For this purpose the District's *Procurement Manual* provides:

All departments and agencies of the District of Columbia are authorized to issue purchase orders direct to vendors when the amount involved does not exceed:

1. $500 in any single day from a single supplier in the purchase of repair parts and repair services, or where specifically authorized on a "Price List" associated with a D. C. contract.

2. $100 in any single day from any single supplier on all other purchases.

Form D.C. 101 (Combination Purchase Order and Voucher) and D.C. 102 (Continuation Sheet) will be used for purchases of this type. This authority may be exercised regardless of whether the supplies, materials or services are for immediate or future delivery or have been furnished. All open market purchases should be made from manufacturers, distributors or wholesalers rather than retail stores.

In the interest of orderly procurement, to facilitate programming purchases and to assure maintenance of quality standards and price control, the District enters into *Term Contracts*. To provide maximum utilization of contracts entered into by the District and the federal agencies in the Washington area, as well as to eliminate insofar as possible competition between the municipal and federal governments in purchasing supplies for delivery in the Washington area, an agreement has been made between the District and the federal government wherein the District purchases from federal government contracts, and in turn the federal government purchases from contracts entered into by the District. To illustrate this point to District agencies and to emphasize its value, the District *Procurement Manual* states:

The District utilizes the facilities of General Services Administration Warehouse for this Region. Contracts entered into by General Services Administration and reflected in the General Supply Schedules, facilities of the U. S. Printing Office, Federal Prison Industries, Army and Navy Oil Contracts are made available to us by agencies of the Federal Government in this area. General Services Administration contracts and the General Services Administration Stores Stock Catalog are not mandatory when the amount of the purchase is $25 or less. Copies of the General Services Administration Stores Stock Catalog, Fuel Yard's Price List, General Supply Schedules, Federal Prison Industries Catalog, U. S. Government Printing Office Price Lists, D. C. Department of Corrections Price List, and price lists associated with D. C. contracts are distributed regularly to all D. C. agencies when and as they become available for each period of use.

The Manual goes on to say:

District term contracts are divided into two categories: one, where we require the contractor to have a local place of business from which he can make deliveries to District agencies and where agencies may call for needed items, and the other where the contractor need not have a place of business within the District. These contracts make it possible for the District to obtain many items direct from the contractor rather than to maintain inventories of these items.

When agencies have a requirement for materials or services not covered by contract, the cost of which exceeds $100 but is not in excess of $500, they must requisition their requirements on Form PO 19A "Requisition" through the Procurement Office, D. C. Three quotations from reliable vendors must be obtained. Agencies may obtain the quotations by telephone and indicate the names of the firms contracted and the prices quoted on the face sheet of the requisition. However, departments shall not make any commitment to vendor, or have any items furnished in advance of the issue of purchase order.

The Manual encourages District agencies to make small purchases under the delegated authority through *Open Accounts* with suppliers rather than to issue a purchase order on each transaction. It construes an open account to be an arrangement with a supplier to furnish materials when and as they are needed during the month, and to render a single billing to the agency at the end of each month for all such supplies. Total expenditures for small purchases under this delegated authority totaled slightly more than $1 million in the fiscal year ending June 30, 1958, or approximately 7% of the total yearly supply expenditures.

The Manual provides policies and procedures for the guidance of District agencies in submitting their supply and service requirements in excess of $500. We particularly urge agencies not to furnish specifications for these items, since standards are developed by purchasing agents in the Procurement Office based on prior purchases and discussions with the using agency. Any substantive changes made in the specifications by the Procurement Office are cleared with the using agency prior to issuing an invitation to bid. When bids have been received and tabulated, if the agency has so requested or if the bid prices are in excess of the estimated price, or if the bid results so indicate, the Procurement Office forwards a copy of the bid to the requesting agency for recommendation as to award.

Specific detailed procedures have been incorporated in the Manual on

it's a fact...

P&K

ALL ALUMINUM LIGHTING STANDARDS

"MOST FOR YOUR MONEY"

Before you specify another lighting standard, take a hard look at your costs. Look at the cost per unit to be sure, then consider the cost of installation. In this regard, nothing compares with the ease of handling light weight P & K aluminum standards. They speed installation, save time and labor. Then compare your maintenance costs. P & K aluminum standards never require painting, not on installation nor at any other time. How much can you save on this factor alone? As for simple good looks, P & K aluminum standards are in a class by themselves. They'll confirm your good taste as well as your sound business judgment for years to come.

You'll find a wealth of helpful information in P & K street and highway lighting brochures. Write for your copies.

HERE'S A COST CUTTING IDEA:

In this on-the-job photo, the crew is changing the glassware on the luminaire. Instead of inadequately cleaning it on the spot, they replace it with a clean one. Then, at the end of the day's run, they bring the dirty globes back to the shop for a really thorough cleaning, and out again, a day or two later to be used as replacements for others. This simple maintenance trick results in a better job, done faster, at lower costs. Of course, the P & K standard never needs maintenance.

PFAFF & KENDALL

84 FOUNDRY ST., NEWARK 5, N. J

certain types of foods which entail procedures that differ from those employed for other items. For example, on fresh foods, dairy products, canned and concentrated foods, frozen foods, meats, etc., no purchase order is issued by the District. After the contract is awarded and the contractor provided with a copy of the contract, using agencies simply place their orders by telephone and the contractor renders a single billing at the end of each month which is verified against the agency's receiving records and processed for payment without further documentation.

The Manual also details procedures for specific types of purchases, such as postage stamps and postage meter impressions, streetcar and bus tokens, and for trading in or exchanging worn-out or obsolete or otherwise unserviceable supplies and equipment. It also covers tax matters as they relate to procurement, with specific details concerning tax exempt transactions and the types of the items which are tax exempt.

The Manual contains detailed procedures on contract administration, change orders, delivery follow-up, and inspection, as well as indicating the sources for obtaining printed forms, price lists, and other data required in agency supply operations.

A section of the Manual is devoted to indicating services provided by other agencies of the District Government, such as building maintenance, repairs to operating equipment, printing, laundry services, etc.—services that should not be procured from commercial sources since the District maintains its own facilities. Other elements of procurement, including authorities of District personnel to commit the District in the expenditure of public funds or to divulge information from bids prior to contract awards, are contained in the Manual.

The final section of the Manual is devoted to informing agencies of the availability of in-service training in procurement at the site of the supply operation in each District agency. As new policies and procedures are developed, they will be incorporated in the Manual.

The preparation of this Manual was undertaken only after a survey of District procurement operations at both central and agency levels. In the course of this survey, and as each procedure was written into the Manual there was an excellent opportunity afforded for the simplification of the procurement operation.

The Manual is being developed in three parts. Part II will deal with internal policies and procedures of the D. C. Procurement Office, including its relationship to other administrative and financial operations of the District and the federal governments. Part III embraces the relationship between the District of Columbia government and prospective bidders, contractors and the interested public. This part of the Purchase Manual will be made available to the public in pamphlet form.

Through this Manual, we hope to assure uniformity in understanding and operation at all supply levels and to assist our suppliers in formulating their bids and in all other relationships with the District. By publishing the Manual in three parts (agency operations, internal operations and supplier relationship) we hope to achieve simplicity in reading, understanding, and application by placing in the hands of the reader only those elements applicable to his particular problems.

Why take a chance? Inferior, inexpensive strainers can only mean costly, time consuming replacement. When you install a Cook Well Strainer you are guaranteed years of superior service attested by thousands of installations that are still producing water at their original G.P.M. The exclusive design of Cook Strainers permits the most direct and unobstructed water way from the water bearing formation into the well. The V-shaped slot allows for maximum development which is accomplished by the removal of silt, alluvium, clay and fine sand from around the outside of the strainer. This provides a natural filter of coarser and more uniform sand and gravel.
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YEAR after YEAR with
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Investigate all the advantages of Cook Strainers. They are available in Red Brass, Silicone Bronze, Armco Iron, or Stainless Steel; in as many different slot sizes as required. Eight to twenty-four hours delivery often possible by telephoning Cincinnati HUmboldt 1-8800.
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WORLD'S LEADING NAME IN WELL STRAINERS

Look what the M-B PACKER eliminates!

Simple design enables you to haul more tonnage at lowest cost

- LESS MAINTENANCE
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- FEWER PACKING CYCLES
- MORE THOROUGH COMPACTION

Put a simply designed M-B Packer on your routes and you eliminate all the trouble and extra expense associated with hydraulic refuse collection bodies. A simple, powerful cable driven packer plate thoroughly compacts all types of refuse and garbage. The absence of heavy, complicated hydraulic mechanisms gives you a body that weighs less per cubic yard of capacity . . . one that can be mounted on smaller, less expensive trucks. Operation is simple, maintenance cost is negligible and production time on the route is increased. Compare the M-B Packer from every angle, then call your distributor for a convincing demonstration. M-B Corporation, New Holstein, Wisconsin.

Easy Loading of Bulky Objects

Huge crates, boxes, cartons, barrels can be loaded quickly and without pre-crushing.

Big Loads Push Out Easily

At the dump or incinerator the full-pack load is pushed out the rear without raising the body. It's simple, foolproof, safe!

MUNICIPAL EQUIPMENT SINCE 1907

M-B CORPORATION
NEW HOLSTEIN, WIS.

PACKER BODIES

LINE MARKERS

SWEEPERS

Nine New "Metro" Areas in U. S.

WITH THE publication of the 90th edition of *Commercial Atlas & Marketing Guide,* Rand McNally & Company shows nine new "Metro" areas in the country. They are Poughkeepsie, N. Y.; Battle Creek, Mich.; Raleigh, N. C.; Springfield, Mo.; Colorado Springs, Colo.; Green Bay, Wis.; Sioux City, Iowa; Appleton, Wis.; and Racine, Wis.

To be eligible for Rand McNally Metro Area rank, a city, in addition to the actual extent of its suburban development, must have a combined population of at least 100,000. With the addition of the new areas, the *Guide* shows 163 Metro Areas in the United States.

Population

The population living within these Metro Areas accounts for 56% of the United States total. Rand McNally reports that the actual growth of population within the Metro Areas far outstrips population gains in the balance of the country. Since 1950, Metro Area population has increased by 20% while population in the non-Metro Area increased only 6% for the same period.

Poughkeepsie, the largest of the new Metro Areas, has a total population of 120,500 in the central city and suburban satellite communities. Colorado Springs and Racine each has 110,000; Battle Creek and Appleton, 105,000; Raleigh, 103,000; Sioux City, 102,500; Springfield, Mo., 101,500; and Green Bay, 101,000.

The *Commercial Atlas & Marketing Guide* is not for sale. It can be leased for $55 per year.

READ THIS AND PAUSE

BATON ROUGE, La., Jan. 14 (AP).—A visitor unfamiliar with pedestrian traffic signals telephoned police headquarters yesterday asking directions to the state capitol.

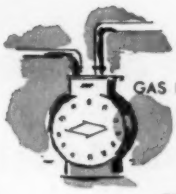
Desk Sgt. M. K. Gunby asked the caller his location. The man stepped outside his phone booth, then returned:

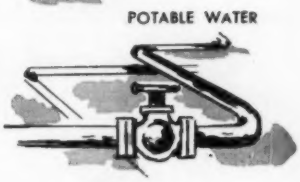
"I'm at the corner of 'Walk' and 'Don't Walk'."

REPRODUCED FROM THE NEW YORK JOURNAL-AMERICAN

REMARKABLE *new* RIGID PLASTIC PIPE!

★ **Higher Tensile Strength**
★ **Higher Heat Resistance**





MADE OF **CYCOLAC®** C ABS

ABS TYPE II
Thermoplastic Resin
(NSF APPROVED)

New Thermoplastic Resin from BORG-WARNER

Now there are two types of ABS rigid plastic pipe made of Cycolac, the *tough* thermoplastic. The original Borg-Warner Cycolac L ABS Type I resin has already proved its worth in scores of applications from coast to coast.

The new Cycolac C ABS Type II resin offers increased tensile strength, greater heat resistance and other important advantages over metal. Among these are light weight, ease of installation and protection against corrosion.

To users of pipe, Cyclolac C offers superior service over a greater range of temperatures with increased chemical resistance.

WRITE FOR NAME OF YOUR NEAREST CYCOLAC EXTRUDER

PACESETTER IN
Marbon CHEMICAL
SYNTHETIC RESINS

Division of BORG-WARNER Washington, W. Va.
also represented by:
WEST COAST: Harwick Standard Chemical Co., Los Angeles, Cal.
CANADA: Dillons Chemical Co. Ltd., Montreal & Toronto
EXPORT: British Anchor Chemical Corp., New York

BW ® Marbon

Naugatuck KRALASTIC

Purifying a city's water supply... with corrosive chemicals carried by Kralastic pipe

4″ Kralastic® pipe has been used successfully for the past year to carry corrosive chemicals in the 100,000,000 gallon-per-day Elm Fork Water Purification Plant of Dallas, Texas*. Kralastic pipe replaced the lead-lined steel and stainless steel pipe previously used to carry chlorine, ferric sulphate, aluminum sulphate and slaked lime.

A resin-rubber blend, Kralastic is ideal where corrosion is a major problem... it can't rust, rot or corrode. The light weight of Kralastic, about 1/7th the weight of iron pipe, eliminates the need for handling equipment. And it can be either solvent welded or threaded for use with standard threaded fittings; it can be obtained in IPS sizes.

For additional information on how Kralastic pipe can economically serve *you*, write to us on your letterhead. Why not do it *today?*

*The pipe used in this installation was extruded of Kralastic by the SouthWestern Plastic Pipe Co. of Mineral Wells, Texas

United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

BRANCHES: Akron • Boston • Gastonia, N.C. • Chicago • Los Angeles • Memphis • New York • Phila.
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A Realistic Sewer Pipe Design For Asbestos Cement Pipe

. . . puts precision into the engineering work and economy into the price

A REDESIGNED and reclassification of asbestos-cement sewer pipe provides engineers with a more realistic selection of materials. This reclassification into five classes carries with it the same number of benefits:

1. An expanded selection of strengths from which to choose.
2. The same crushing strength for all sizes in each class.
3. Classification clearly marked on each pipe, coupling and fitting, and hence the test load for which they were designed.
4. The same joint dimension for every class of pipe in any one size, permitting direct connection of different class of pipe without special machining or adapters.
5. Selection of intervals between classes on a realistic and economical basis from both the manufacturer's and the sewer designer's point of view.

The new classification, introduced by Johns-Manville on March 15, 1958, is listed in the accompanying table along with the old system for comparison:

The availability of five classes reduces the need for concrete cradle, a costly operation initially and when future connections are made. This is especially true in the smaller sizes.

It was practically impossible to lay out a large job and avoid using concrete cradle without strengths greater than 2,400 pounds per lineal foot. However, with pipe strengths up to 5,000 pounds per lineal foot now available, many conditions formerly calling for concrete cradle will be served adequately by using the higher-strength pipe. The added material cost will be far less than that of placing the concrete.

Smaller Increment

The smaller increment between classification will eliminate the need for overdesign often required by the difference of 2,000 pounds or more in the old classification. The new arrangement of increments from 700 to 1,000 pounds permits more efficient and economical material selection as well as greater flexibility in design.

Giving the pipe the same classification as the crushing strength removes any confusion that may have existed with the old system. Once the engineer becomes familiar with the five-strength classification, he no longer needs to refer to tables to check the strength of any given size, but instead, can quickly convert his job specification to meet his needs regardless of the pipe size he is working with.

Poorly marked materials make for difficult inspection. With each pipe

New Classification of Asbestos-Cement Sewer Pipe

	New Total applied load per lineal foot (Lbs.)				Old Total applied load per lineal foot (Lbs.)		
Pipe Size (Inches)	Class	Class	Class	Class	Class	Class	Class
	1,500	2,400	3,300	4,000	5,000	I	II
6	1,500	2,400	3,300			2,600	
8	1,500	2,400	3,300			2,500	
10	1,500	2,400	3,300	4,000	5,000	2,400	3,000
12	1,500	2,400	3,300	4,000	5,000	2,300	3,000
14	1,500	2,400	3,300	4,000	5,000	2,200	3,400
16	1,500	2,400	3,300	4,000	5,000	2,200	3,700
18		2,400	3,300	4,000	5,000	2,200	4,000
20		2,400	3,200	4,000	5,000	2,200	4,000
24		2,400	3,300	4,000	5,000	2,400	4,500
30			3,300	4,000	5,000	3,200	5,200
36				4,000	5,000	4,000	6,000

Today's Modern Water Tanks Prestressed Concrete Type

Long and Short Term Economies Making Them Popular

A modern prestressed concrete tank is not only economical in first cost, but because of its almost maintenance free character, offers any municipality real long term economy. Any tankage engineering study should include calculated maintenance costs over the estimated life of the facility. Average yearly maintenance on a 3,000,000 gallon steel tank is estimated at $2500 per year at current prices. For a prestressed concrete tank, maintenance is negligible; however, occasional painting for color effect may be desired.

When the charges for servicing the initial cost plus relative maintenance allowances are plotted, the prestressed concrete tank will often show a lower out of pocket cost to the owner in less than 5 years. When these costs and

their increases are extended for an expected service life of 50 years, the savings to the owner with prestressed concrete are enormous.

The prestressed concrete tank is also a good looking tank . . . it is inherently strong and extremely stable . . . it is designed and built for permanence. And, 75% of the contract price is spent right in your local community . . . construction is done with materials and labor available locally.

Write today for more information on Preload Prestressed Concrete Tanks.

THE PRELOAD COMPANY, INC.
211 East 37th Street
New York 16, New York

PRELOAD CONCRETE STRUCTURES, INC.
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Jefferson Tower Bldg., 351 Jefferson, Dallas, Tex.

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7325 Decarie Boulevard, Montreal 16, Canada

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dependability is proved millions of times daily in 1400 cities in U.S.A.

More than 600,000 Park-O-Meters are serving the convenience of millions of motorists and boosting store traffic for hundreds of thousands of merchants with their dependable, care-free service every day.

There are no exposed working parts to be affected by weather, or to tempt vandalism . . . and Park-O-Meter is the only completely automatic meter that permits Split-rate Setting, which allows one rate for an initial period with such operation as lower rate for extended time.

OTHER FEATURES EXCLUSIVE TO PARK-O-METER

1. Single coin-slot accepts pennies, nickels, dimes, quarters or tokens . . . any one, or all five in any combination.
2. Adjustable rate ring permits time, coin and rate changes without shop over-haul.
3. Optional coin feature permits use of nickel or dime in place of penny; dime in place of nickel, or quarter in place of dime. Motorist does not need to have exact change.
4. Coin-slot block prevents loss of coin by motorist if coin passage is obstructed from any cause.
5. Demountable sealed timer permits instant on-site exchange . . . more revenue with less out-of-service time, and dollars saved on service labor.
6. Large, 5¼ square inch, expired signal is visible from the street by mounted patrolling officer . . . eliminates sidewalk checking.

ASK FOR DEMONSTRATION

The motorist and merchants in your city deserve the best. You are in position to supply just that.

Magee-Hale
PARK-O-METER COMPANY
3909 Willow Springs Road

coupling and fitting clearly marked as to classification, and consequently crushing strength, the inspector can tell at a glance whether the correct pipe is going into the work at any given place. This also simplifies changing pipe strengths between manholes, especially since special fittings or adapters are not needed.

The interconnection feature is made possible by retaining uniform end dimensions on the pipe in the area of the coupling. The inside diameters are not changed in any way. The thickness of the coupling and pipe walls increase with the strength but the inside surface of the couplings and the mating end surfaces of the pipe lengths are identical for all classes in any one size.

Municipal Service Station

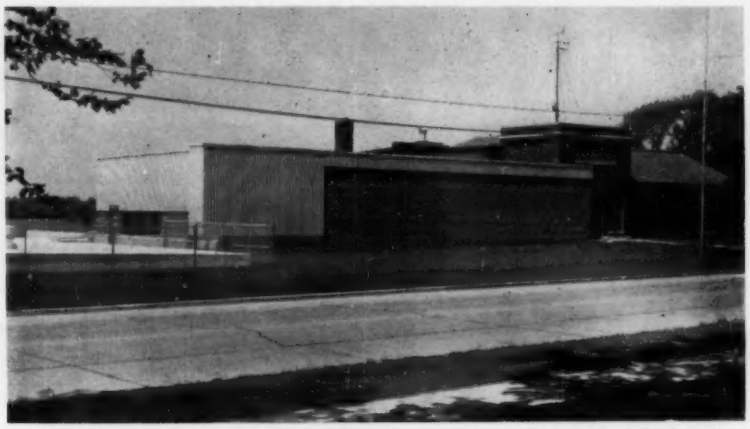
PORT ARTHUR, Texas, has just built and put into operation a new Municipal Service Station for servicing all municipal equipment. It is operated 24 hours each day, seven days each week. Bowser Ticket-Printer pumps were installed to get a better control of inventories. There were two 12,000-gallon tanks installed to handle regular and premium grade gasolines and one 2,000-gallon kerosene tank. There was a 13,000-gallon diesel tank previously installed at the site. Oil Stock accounts have been reduced from five to one. Moving the Service Station operation from the garage to another site has improved the efficiency of the garage. The Service Station is under the Purchasing Agent.

Philadelphia Studies Underground Garage

THE City Planning Commission and the City Council of Philadelphia, Pa. are making an initial study for a 700-car underground parking garage in Reyburn Plaza. If the project proves feasible, actual construction plans and specifications will be drawn.

The underground parking garage is the first step in the construction of the new Municipal Services building, scheduled to begin in 1961. The garage will be either completely or partly underneath the 16-story building. Public Property Commissioner William T. Gennetti said no funds are being requested for actual construction of the garage because it is expected that private financing will be developed on a leasehold basis.

Use Northern Gravel for Rapid Sand Filter



"All three filters have sand and gravel from the Northern Gravel Co. of Muscatine, Ia. We were very well satisfied with the quality of material and the service rendered by this company", says B. L. Whitney, Manager, Fairmont, Minn.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long specifications. Filter sand can be furnished with any effective years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. The requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

WORLD LEADERS IN STREET STRIPING

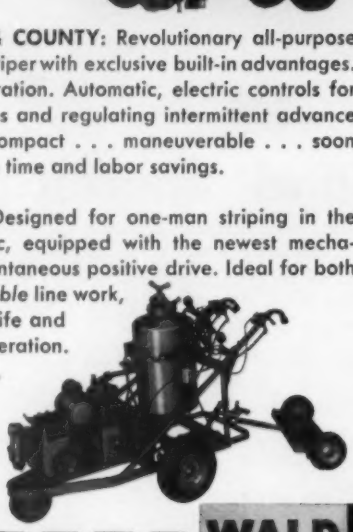
WALD

Reflecto-Liners

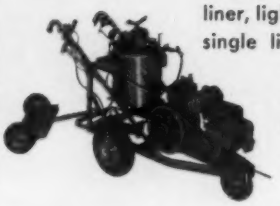
FOR METROPOLITAN CENTERS

THE TOWN & COUNTY: Revolutionary all-purpose Push Button Striper with exclusive built-in advantages. One-man operation. Automatic, electric controls for patterning lines and regulating intermittent advance and retard. Compact . . . maneuverable . . . soon pays its cost in time and labor savings.

MODEL 16: Designed for one-man striping in the thick of traffic, equipped with the newest mechanisms for instantaneous positive drive. Ideal for both *single* and *double* line work, built for long life and economical operation. Self propelled.



FOR LARGE AND MEDIUM CITIES



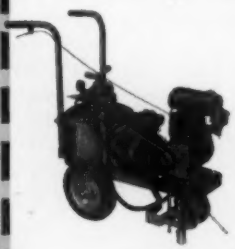
MODEL 12: The original Reflecto-liner, light, fast, easy to handle. For single lines with clear-cut edges, 2 to 6 inch widths, this striper beats anything on the market. Wald's double-acting elbow traction gives it smooth, positive self-propelled driving power.

MODEL 8T: This light-weight, single-line self-propelled spray machine is unmatched in its field. It has strength and versatility, does a terrific job on streets, cross-walks, parking areas, aisles or any location requiring fast backing and turning.

For Small Cities, Towns and for Industry

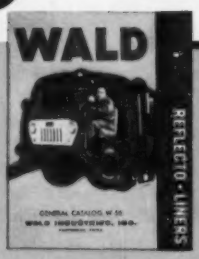
MODEL 8T, described above, outperforms by a wide margin every other small machine available, making it ideal for small cities and towns that need a self-propelled unit.

REFLECTO-LINER JR.: A rugged, hand-propelled striper that gives top performance in industrial uses, in-town striping, parking lots, etc. A gem of Wald engineering that handles as easily as a vacuum cleaner. Designed for the small municipality at a budget price.



All Wald Reflectoliners Handle Ordinary Non-Reflective Paints as well as Reflective Marking Materials with Equal Ease

New General Catalog W-58 Is Now Ready With Specification Charts and Full Details On All Wald Reflectoliners, Accessories and Equipment Including The Famous Wald Automatic Sign Shop



Wald Industries, Inc.
Huntingdon, Penna.

Please send immediately your illustrated General Catalog W-58.

NAME_____

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STATE_____ **POSITION**_____

WALD . . . "The World's Greatest Name in Marking Equipment"

Burbank's swimming pool: A—pool, 20 x 50 meters; B—bathhouse; C—gymnasium; D—snack bar; E—view deck; F—small arms firing range; G—color-corrected mercury vapor lights; H—lounge with large view window; I—community building wing.

Special Pool Design Pays Off

By DEWEY KRUKEBERG
Director of Parks and Recreation
Burbank, Calif.

I AM glad to report that a definite trend is developing towards more realistic swimming pool design. City and county officials are realizing that pool engineering is a specialized field and equally important as the engineering of any other municipal facility.

When the California Swimming Stadium in Burbank was designed and built a few years ago, my colleagues in the park and recreation profession shook their heads and asked me: "How in the world do you have the nerve to gamble a quarter of a million dollars of taxpayers' money on a design so revolutionary?"

Our thinking on that pool was entirely new, though since then it has become increasingly accepted. Thanks to the similar views of Ralph S. Brooks, a noted swimming pool engineer who cooperated with us in the design and engineering of both the older pool and the brand-new facility, we had no outmoded thinking to overcome in our own ranks.

We had long been concerned with the problems common to improperly-designed public pools: over and spotty chlorination; inadequate circulation; oily scum; high acidic content from body acids; the great loss of reclaimable water; and the constant deterioration of plumbing. All of these things we felt were traceable to one great fault—the basic practice of bringing water into the pool through a few big pipes at the ends or sides and discharging it at the bottom.

Mr. Brooks, in years of experiments, had found that reversing the flow—that is, jetting the water in at the bottom and overflowing it off at the top—accomplished three things:

First, it achieved uniform impregnation of chlorine as a result of the constant turbulence. As a result of this, we have changed our city ordinance to require only .2 parts per million, instead of .3 ppm. More is totally unnecessary; and in this process we have eliminated pinkeye and other hazards of poor chlorine circulation.

Second, it does away with the usual oily scum from hair oil, sun tan lotion, or other residue which is in flotation. All this now flows off constantly into the scum gutter, thence to the lint catcher and retention chamber, which effectively stops all nonsoluble matter. Thus, the filter can reclaim *all* the water for re-use.

Third, the pool bottom is cleaner, the constant turbulence discouraging the formation of algae and requiring much less vacuuming.

New Pool Design

In planning the swimming pool in our new McCambridge Park Recreation Center, we proceeded along a line that not so long ago was regarded as rank heresy in conservative circles.

- **Our pool has 85% usable water. Except for a small, deep area directly in front of the three diving boards, the entire pool is 5 feet or less in depth.**
- **The pool is 20 meters wide and the standard 50 meters in length. This extra width enables us to start three times as many novices simultaneously in the 20-meter competition.**
- **Most important, our pool is so clear it literally sparkles. We proceeded with the engineering of the pool by reversing the orthodox flow of water—and reversing the ordinary thinking. Water comes in at the bottom, through a system of more than 50 jets. It flows off continuously at the top,**

one tapping sleeve ...

fits all classes of cast iron pipe regularly used.

MUELLER® Tapping Sleeves and Valves provide a means of running a lateral with a minimum of inconvenience and they offer *extra* user benefits. The tapping valve has the exclusive four point wedging mechanism. The tapping sleeve has extra length and heavy duty construction so as to actually strengthen the main at the point of connection. A Mueller Mechanical Joint Sleeve for a specific nominal size will fit all classes of cast iron pipe regularly used by employing one of two sets of gaskets. If there is any doubt as to the class of pipe which will be uncovered, the operator takes both sets of gaskets to the job site, then uses the proper set, designed to fit that specific pipe. For example: Use the duck-tipped gaskets for centrifugally cast pipe; use the plain end gaskets for class D pit cast pipe.

This simple detail of design is typical of many extra features of Mueller Tapping Sleeves and Valves and Tapping Crosses. It is also typical of the great attention to detail in research, design and engineering that becomes a part of every Mueller product used by the water industry.

MUELLER CO. DECATUR, ILL.

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

Factories at: Decatur, Chattanooga, Los Angeles;
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through the scum gutter, into a lint chamber, a retention chamber, thence into the purifier.

The result: the water needs less chlorine than the usual, yet chlorination is 100% uniform. Furthermore, the objectionable oils and body acids that are the scourge of most public pools are no longer a problem with us. We have no black "grease ring" at the pool's water level to increase our cleaning problems.

In short, our water is more sanitary with less chlorine — and we save on the cost of water because we lose very little with this constant-level, constant-flow type of recirculation.

Pool Data

The swimming pool has a capacity of 385,500 gallons. The recirculating system, including the filter plant was designed to recirculate and filter the total volume of the pool water over a six-hour period. We provided two diatomaceous earth filters with a total filter area of 360 square feet, based on a yield of 3 gallons per square foot of filter area per minute. The filters were furnished by Los Angeles Water Softener Company, Inc. of Glendale, Calif.

Floodlighting

Floodlighting around the pool area was provided by installing four 45-foot steel poles on which were mounted 32 (eight on each pole) color-corrected mercury vapor lamps (S & M No. 952 CAL-MV general purpose floodlights) half of which had 90-degree wide beam polished alzac reflectors and the other half had 45-degree reflectors. The gym was lighted by using mercury vapor color-corrected lights (S & M No. 21518 mercury vapor High Bay J.H.I. 400 WB-T.-37) inside frosted phosphor coated lamps.

Recreational Facilities

This project was much more than just a swimming pool and bathhouse. It also included a full-height fully-equipped gymnasium with stage, with direct access to showers in the bath house on the first floor; a games room for lower age groups and a lounge overlooking the swimming pool; space for director; crafts room; cloak room; and community meeting rooms. The small bore rifle range on the first floor is just another facility which enables us to provide a well-rounded recreational program for all age groups.

Schramm 125 Pneumapower Compressor breaking concrete pavement. Schramm provides more air to give you maximum tool efficiency at less cost.

MUNICIPALITIES WITH COMPETITIVE COMPRESSORS REPORT:

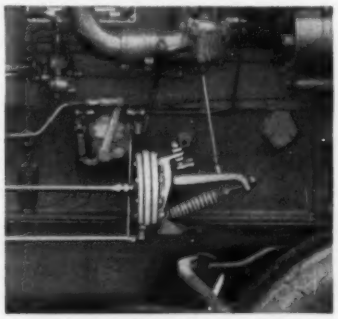
The man with the Schramm does 15% more work

Take a close look at your present compressors. Compare them with this Schramm 125 Portable. Chances are you're not getting your money's worth. Cities, towns, boroughs report that *competitive* 125 cfm compressors take from 10 to 15% more horsepower to provide 125 cfm of air at 100 psi. *They also take 15% more fuel* . . . and cost more to buy!

Here's the smallest, most compact compressor in its rating. It's light weight, easy to move. Twelve-volt electric battery makes it easy to start, even in cold weather. Any engine mechanic can easily service . . . parts are 90% interchangeable between engine and compressor.

The statements above are *FACTS*. Let us tell you about them in more detail and show you our complete line of Portable Compressors—one or more of which will suit your needs exactly. Send today for your free copy of SPB-58.

Schramm 75 cfm Compressor is ideal for air tools used by municipalities. Use it to power backfill tampers, chain saws, paving breakers, riveting guns, rock drills, trench and clay diggers, sheeting drivers.



Automatic control is a feature of Schramm Portable Compressors. The patented Schramm Pneumastat controls speed of each unit without operator's manipulation. Engine operates from idle to rated speed according to air demands.

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MANUFACTURERS OF AIR COMPRESSORS

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Please send me a free copy of Schramm Portable Air Compressors, SPB-58.

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SCHRAMM, INC.
603 North Garfield Ave., West Chester, Pa.

Spend one day with a Hydro E-Z Pack and you'll see ways to save many dollars on any waste disposal operation.

You'll have to believe a demonstration of Hydro E-Z Pack right on your own route, won't you? You'll see how one unit hauls all types of waste—garbage, trash, tree limbs, etc.—on commercial, residential, suburban and mixed routes. You'll see how E-Z Pack requires fewer men, makes more stops in less time, makes fewer trips to the dump and unloads faster. You'll see just why E-Z Pack requires a smaller-sized chassis than most packers, thus cutting initial investment, operating and maintenance costs. Then, you'll start figuring how much Hydro E-Z Pack can be saving you (or adding to your profits, if waste disposal is your business).

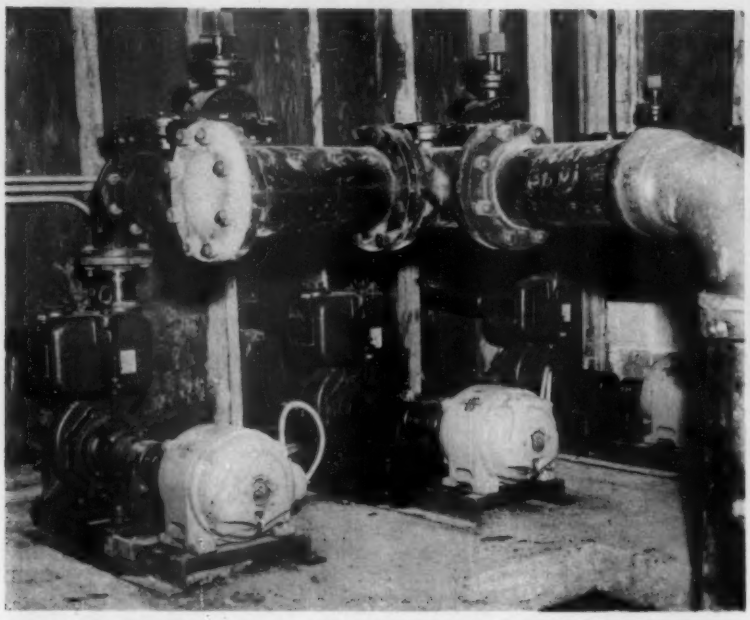
If a demonstration can prove all this (and not obligate you in any way), don't you think it would be wise to ask for one? Do so by writing us. We'll help arrange a seeing-is-believing demonstration and send a free copy of "The Big Squeeze."

Hydro E-Z PACK

HYDRO E-Z PACK

HYDRO E-Z PACK DIVISION OF HERCULES GALION PRODUCTS, INC., DEPT. AM-259, GALION, OHIO

Horizontal Trash-Sewage Pumps



Three Gorman-Rupp Trash-Sewage Pumps serve Floradale Housing Development in Jacksonville. Two are on a siamese fitting with direct lift from wet well to primary circuit sewage system. The third pump operates as a single unit, recirculating sewage from the settling tank.

SANITARY ENGINEERS, operators and housing development executives learned of the advantages of horizontal trash-sewage pumps at a recent forum meeting of the Jacksonville, Fla., Home Builders' Association from a talk given by James C. Gorman, Gorman-Rupp Co., Mansfield, Ohio.

Jacksonville first installed horizontal pumps in 1951 and they continue in use. In the Jacksonville area sewerage service is provided by a sanitary service operating company on a fee basis. The entire system of sewers and disposal plant is subject to state and federal standards of construction and operation.

Originally the horizontal-type, self-priming centrifugal pump was designed for cleaning cesspools and septic tanks, but certain of its characteristics have led to its increased use in sanitary sewerage, especially in housing development systems.

Mr. Gorman stressed two points in his presentation:

1. The horizontal-type pump works "in the dry" with only the suction service pipe located in the sump.
2. End plates are above liquid level and are removable, giving instant access to pump parts; therefore maintenance and cleaning do not affect system piping.

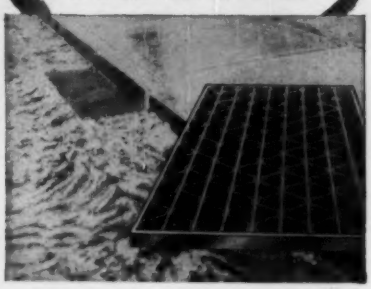
What Is Organized Lubrication?

APPLYING the *right amount* of the *right lubricant* to the *right place* at the *right time* is not as easy to do as it sounds. The major factors include: (a) determination of the lubrication requirements of the equipment, (b) selection and purchase of lubricants, (c) storage and handling of lubricants, (d) application of lubricants, and (e) preventive maintenance practices. Organized lubrication is a concerted effort to co-ordinate and consolidate all of these factors.

The benefits to be realized from an organized lubrication program can be translated directly into cash savings equivalent to from 10 to 100 times the purchase price.

The advantages, and the methods and how to work them out, are fully presented in the July 1958 issue of *Lubrication*. For a free copy, write The Texas Co., 135 E. 42 St., N. Y. 17.

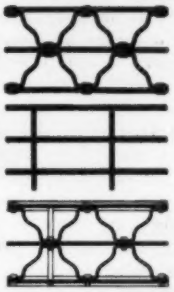
FLOODED HIGHWAYS HINDER TRAFFIC



OLD heavy cast iron draingrates, averaging at best 40% clear opening, often fail to carry off rain water fast enough during heavy downpours, resulting in flooded highways—particularly at underpasses. Also, cracked draingrates must be replaced.

With open steel mesh draingrates, larger clear openings reduce the likelihood of flooded highways considerably. Irving "Dryway" Draingrates are 75% open for greater drainage and are made of steel bars on edge, not subject to cracking.

Available in three basic designs:



Write for brochure on "Dryway" Draingrates
Self-maintaining, Lightweight, Economical, Safe

IRVICO

IRVING SUBWAY GRATING CO., Inc.
Originators of the Grating Industry

Offices and Plants at
5030 27th St., Long Island City 1, N. Y.
1830 10th St., Oakland 23, California

Modern Water Rates Part II

The Logic Back of Water Meters

TWO good reasons exist for the use of a water meter on every service line. They are scarcely new—have been in existence since the time of Frontius, "water commissioner" of Rome around 100 A.D. Frontius was the first man of whom we have record who advocated and used a metering device on water services.

They have been advocated strongly for well over half a century by such great civil engineers as John Freeman and Allan Hazen, whose principles of hydraulic design are still in active use today. Mr. Hazen's book, "Meter Rates," written 40 years ago, is still a valuable reference.

The first reason for using meters is that they provide a fair and equitable method of distributing the cost of water supply. The second is that they provide a practical way of discouraging excessive waste.

That the reasoning has merit is well supported by the present widespread use of the meters. In a study of 125 water systems made by the editors of this magazine in 1954, 96 have a meter on every service and 107 have metered 90% or more of their services. Thus, the overwhelming practice across the nation confirms that both the nation's water works and their customers accept the use of these instruments as a fair and accurate method of apportioning cost.

The elimination of unnecessary waste is an important factor. One would not care to use an unfair, inequitable method of distributing cost, simply to eliminate waste. Since its fairness has received widespread acceptance, one can document with satisfaction the spectacular saving that meters produce, particularly when first introduced.

In 1940 the little North Dakota city of Wahpeton found itself distributing 700,000 gallons of water per day on a flat-rate basis. When the city installed meters, the volume of water used dropped to 250,000 gallons per day, and the average water user's bill was less than it had been under the flat-rate system.

In 1931, Elizabeth City, N. C., was distributing 1,800,000 gallons of water each day on a flat-rate basis. The installation of meters reduced the demand to only 300,000 gallons per day.

In 1932, Madisonville, Ky., installed meters and saw the demand for water drop from 225 gallons per person per day to only 105 gallons. In 1920, Akron, Ohio, metered its system and cut its per capita demand from 117 gallons per day to about 80.

Going further back in the period of 1898-1911, we find savings like those shown in the accompanying table (THE AMERICAN CITY, July 1912, p. 45).

Some feel that these figures are only temporary, that the users first "economize" on water and then gradually increase their demand. Harris Seidel, water superintendent, Ames, Iowa, became curious about this a few years ago and decided to see whether it was true or not. He examined the water data collected by the American Water Works Association in 1950 for about 300 cities, fully metered, for which there were full data on water use, treatment, and other details. This enabled him to determine the normal water use for cities in various population groups, with similar types of plants and systems, and in similar regions.

Next, he selected a group of cities whose systems had varying percentages of meters, ranging from zero to somewhat over 80%. He then compared the water use in these cities with the normal water use in cities in similar circumstances whose systems are 100% metered.

Mr. Seidel found that, among systems with 30% or less of the services with meters, some actually distribute less water than those whose systems are completely metered. This apparently gives some substance to the claim that the meters are over-rated.

However, for every system in this 30%-metered range using less water than a comparable 100%-metered system, there are five using more, two of which have to pump twice as much water as a comparable 100%-metered system.

Thus, if you do not have a water meter on every service, the odds are overwhelming that you are wasting water. When you waste water, you at the same time are wasting money that has to be spent on power for pumping, on chemicals for treatment, on plant capacity, pipelines, and storage reservoirs.

This type of preventable waste, meters eliminate. When they at the same time provide a fair and equitable method of apportioning the cost of the service among those who make use of it, the logic of using the meters becomes obvious.

In the November 1911 issue of THE AMERICAN CITY, p. 292, we find Water Commissioner George Houston writing with evident annoyance,

City	Year	Percent Metered	Gallons Per Capita Daily
New Bedford, Mass.	1898	8	102
	1911	62	78
Lowell, Mass.	1899	0	78
	1911	80	49
Cleveland, Ohio	1900	6	169
	1911	97½	104

This Pocatello, Idaho, storm sewer in good condition after 45 years

In 1914, Pocatello, Idaho, installed this 36-inch-diameter Armco Corrugated Metal Pipe as a storm sewer. A recent inspection of this pipe revealed practically no corrosion, no erosion. The sewer is good for many more years.

LOW COST THROUGH LONG LIFE

Armco Corrugated Metal Structures have been used as storm and sanitary sewers throughout the country for the past half-century. Many of these are still giving good service today. This durability, coupled with low maintenance costs, assures long-term savings with Armco Corrugated Metal Structures.

Over the years since the Pocatello sewer line was installed, Armco's continuing research program has developed even more durable products to meet severe corrosive and erosive conditions. For information on the newest of these improved products—Armco SMOOTH-FLO® Sewer Pipe—just fill in and mail the coupon.

Armco Drainage & Metal Products, Inc., 4369 Curtis Street, Middletown, Ohio.

ARMCO DRAINAGE & METAL PRODUCTS, INC.
4369 Curtis Street, Middletown, Ohio
Send me the folder "Armco SMOOTH-FLO Sewer Pipe."

Name_____
Position_____
Street_____
City_____ Zone____ State_____

ARMCO DRAINAGE & METAL PRODUCTS

Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company
The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

DRAMATICALLY CLEAN sweeping with Tennant "100" reduces complaints, attracts public interest.

SWEPT AS CLEAN AS YOUR OFFICE FLOOR. Tennant's huge 540-square-foot filter captures virtually *all* the dirt . . . even particles as fine as 5 microns, far smaller than the human eye can see. The Tennant "100" sets a new cleaning standard.

YEAR AROUND SWEEPING. Tennant Vacuumized system gives almost perfect dust control without need for water spray . . . thus no winter freeze-up problem. Your town can enjoy extra clean sweeping even when temperatures are below-zero!

How to give your city an EXTRA-CLEAN name

From Maine to California, progressive cities take pride in the *cleanliness* of their downtown areas—as these are their public "showcases".

It is here—where extra-clean sweeping counts most—that you will find enthusiastic interest in TENNANT'S revolutionary *vacuumized sweeping.*

You'll see the difference at once, because a TENNANT Model "100" Vacuumized Sweeper provides *ultra-clean sweeping . . . with no dust nuisance at all!* For performance, the new "100" is in a class by itself.

Its powerful brush-and-vacuum system picks up the fine dust that's usually missed . . . as well as heavy, bulky debris. It cleans a 7'4" path.

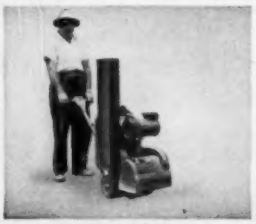
You'll find it trimly compact, highly maneuverable. Assures outstanding results in downtown areas, dusty alleys, parking lots . . . as well as in attractive residential areas.

WRITE TODAY *for illustrated bulletins, photos and performance data. G. H. Tennant Co.,* 751B. *N. Lilac Drive, Minneapolis 22, Minnesota.*

TENNANT

VACUUMIZED SWEEPERS

Power Sweepers



Traffic Line Erasers

Concrete Routers

SPECIALIZED MAINTENANCE EQUIPMENT

". . . how any municipality that is struggling with the question of an inadequate supply of water will ignore the benefits that they might derive from a complete metering of the plant and continue to pay out the citizens' hard-earned money, contributed yearly in the way of taxes, to get an increased supply of water in order that the wasteful may have more to waste, when all they have to do is to properly care for what they have, is too deep a mystery to be fathomed by the writer."

While this is hard to repeat without taking a second breath, the Commissioner's meaning is abundantly clear.

ELKHART, IND.

Rates Per Month

Cubic Feet		*Per 100 Cubic Feet*
First	3,300	$0.165
Next	30,000	.10
"	300,000	.08
Excess		.055

Minimum Monthly Charges

Meter Size (in inches)	*Charges*
⅝	$1.10
¾	1.65
1	2.75
1½	4.40
2	6.60
3	12.10
4	16.50
6	27.50
8	55.00

Fire Protection

Standpipe or Steamer (Connection Size in inches)	*Monthly Charges*
2	$1.20
3	2.40
4	4.80
6	6.00
Per private fire hydrant	6.00

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges*
3,000	400	$1.10
5,000	667	1.10
10,000	1,333	2.20

General Data

Population served		38,000
Miles of mains		110
Services	*Number*	*% Metered*
Domestic	10,171	100
Commercial	670	100
Other	188	100
Supply—Wells		
Treatment—chlorine and sodium silico fluoride		
Plant capacity		22.5 mgd
Average demand		4.3 mgd

Remarks

1. No part of the service line is paid for by the city.
2. The city installs the line from the main to the property.
3. Initial cost of new mains is financed by the contractor. Approximately 75% of the cost is refunded within two years.
4. The city does not operate sewer services, but bills and collects both sewer and water charges.
5. Bills are rendered on Underwood automatic billing equipment.
6. The last revision of water rates was in 1949 when they were increased 10%. The water use was not affected. A further adjustment in rates is now needed

CLAIR K. PARKHURST
Superintendent
City Water Works

EAU CLAIRE, WIS.

Rates Per Quarter

Cubic Feet		*Per 100 Cubic Feet*
First 800		*Minimum bill*
Next 3,200		$ .20
"	7,000	.15
"	739,000	.10
Excess		.0525

Minimum Quarterly Charges

Meter Size (in inches)	*Charges*
⅝	$3.00
¾	3.75
1	5.00
1¼	7.00
1½	8.00
2	13.00
3	25.00
4	40.00
6	85.00
8	140.00
10	190.00

Each additional unit of service on a meter, 50c each quarter. The city adds a 25% surcharge for service outside limits.

Fire Protection

Connection Size (in inches)	*Charges (per quarter)*
2	$5.00
3	10.00
4	17.50
6	30.00
8	45.00
10	62.50

Typical Quarterly Rates

Gallons	*Cubic Feet*	*Charges*
9,000	1,200	$3.80
15,000	2,000	5.80
30,000	4,000	9.40

General Data

Population served		40,000
Miles of mains		115
Services	*Number*	*% Metered*
Domestic	8,749	99.9
Commercial	728	100
Others	68	100
Supply—wells		
Treatment—iron and manganese removal		
Plant capacity		24 mgd
Average demand		11.5 mgd

Remarks

1. Water Department maintains no part of service line, but does provide all intersections, valves, fittings hydrants, and all costs over 6-inch mains.
2. There are no sewer service charges in effect, and automatic billing equipment is not used.

CASPER BARNEY
Superintendent
City Water Department

GLOVERSVILLE, N. Y.

Semiannual Rates

Cubic Feet		*Per 100 Cubic Feet*
First	5,000 or less	$0.25
Next	5,000	.20
Next	5,000	.15
Next	5,000	.10
Next	5,000	.08
25,000 to 500,000		.07
500,000 to 1,000,000		.06
1,000,000 to 2,000,000		.05
2,000,000 to 3,000,000		.04
Excess		.03

10% is added for payment later than 30 days.

Minimum Semiannual Charges

Meter Size (in Inches)	*Charges*
½ and ⅝	$4.00
¾	10.00
1	20.00
1½	50.00
2	100.00
3	200.00
4	300.00
6	500.00

Typical Semiannual Costs

Cubic Feet	*Gallons*	*Charges*
2,400	18,000	$6.00
4,000	30,000	10.00
8,000	60,000	18.50

General Data

Population served		24,000
Miles of mains		61
Services	*Number*	*% Metered*
Domestic	5,634	100
Commercial	130	100
Other	25	100
Supply—Storage		
Treatment—filter plant, fluoride and Calgon		
Plant capacity		6 mgd
Average demand		3 mgd

Remarks

1. Service lines are provided to the property only.
2. The main line of main is provided at the city's expense. 50% of the lots must apply for service at their own expense.
3. Gloversville Water Works has nothing to do either with sewer operations or the billing and collecting of sewer charges.
4. In preparing the billing, Addressograph and Multigraph machines are used.
5. Water rates were last revised in 1954 at which time the Water Works removed the 10% discount allowance. The water use was not affected by this adjustment. Further revision of the rates is needed.

W. VAN BROCKLIN
Superintendent
Gloversville Water Works

GREAT FALLS, MONT.

Rates Per Month

Cubic Feet		*Charges*
First	1,000	$0.30
Next	4,000	.25
"	5,000	.20
"	90,000	.13
Excess		.11

Minimum Monthly Charges

Meter Size (in inches)	*Charges*
⅝ and ¾	$2.40
1	3.00
1½	4.00
2	5.00
3	10.00
4	15.00

Rates and meter charges for out-of-town customers are the same as for those in the city.

Fire Protection

1- to 2-inch stand pipes or automatic sprinklers, per year $50.
2- to 6-inch stand pipes or automatic sprinklers, per year $100.

Typical Monthly Costs

Cubic Feet	*Gallons*	*Charges*
400	3,000	$2.40
667	5,000	2.40
1,333	10,000	3.78

General Data

Population served		60,000
Miles of mains		150
Services	*Number*	*% Metered*
Domestic	10,016	9
Commercial	1,490	90
Supply—Missouri River		
Treatment—coagulation and sedimentation		
Plant Capacity		22 mgd
Average Demand		8,897,827 gpd

Remarks

1. The city maintains no part of the service lines.
2. With regard to new mains and extensions, the city provides transmission mains only.
3. The city's water department operates both water and sewer services and bills and collects for both.
4. Billing equipment consists of an Addressograph for heading up bills and a Burrough's machine for computing.
5. New water rates went into effect July 1, 1958. Depending on the size of the meter, rates were increased by various percentages.

W. L. HILL
Water Registrar
City Water Department

HOLLAND, MICH.

Cubic Feet		*Per 100 Cubic Fee In City*	*Suburbs*
First	1,000	$0.48	$0.72
Next	9,000	.26	.39
Next	40,000	.22	.33
Excess		.16	.24

Service to suburbs only on existing lines or as otherwise provided in Rules and By Laws.

Minimum Quarterly Charges

Meter Size (in inches)	*Charges In City*	*Suburbs*
⅝	$4.80	$7.20
¾	9.00	13.50
1	12.00	18.00
1½	24.00	36.00
2	39.00	58.50
3	75.00	112.50
4	150.00	225.00
6	240.00	360.00

10% discount for prompt payment

Fire Protection

Size of Connection (in inches)	*Charges (per annum*
3 and smaller	$10.00
4	15.00
6	35.00
8	80.00

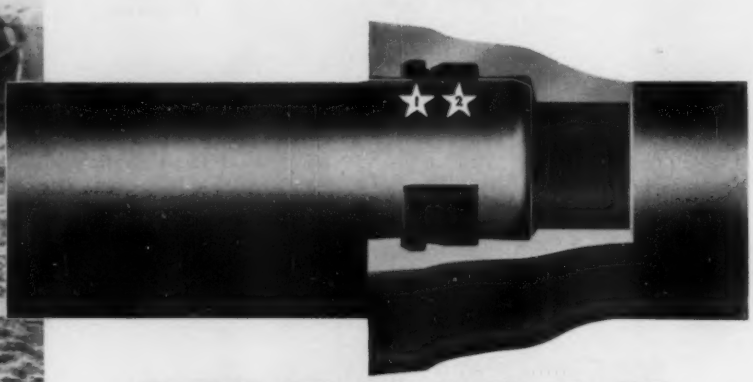
Sewer Flushing: $870 per year, flat rate, payable quarterly.
Fire Hydrants: $40 per year per hydrant, payable monthly.
No discount on fire protection, sewer flushing or hydrants.

(Continued on page 171)

★ Fast Installation

★ Adequate Deflection

★ Leak Free



AMERICAN Fastite® JOINT CAST IRON PIPE

The immediate nation-wide acceptance given American Fastite Joint pipe—introduced just two years ago—is proof of its outstanding quality. Already, several *millions* of feet are now in service.

Ease and speed of installation—with only one joint component, a double-sealing, dual-hardness rubber gasket—means economy from the start. Its deflection capability means additional economy.

Combined with the proven longer service life of high strength cast iron, the American Fastite Joint offers many special advantages for water, sewage and other liquid service.

Get full facts from your nearby American Cast Iron Pipe Company representative while your project is in the planning stage. Ask him about Fastite—American Fastite Joint cast iron pipe.

SALES OFFICES

New York City • Dallas
Chicago • Kansas City
San Francisco • Denver
Pittsburgh • Orlando
Minneapolis • Cleveland
Birmingham

AMERICAN CAST IRON PIPE CO.
BIRMINGHAM ALABAMA

Typical Quarterly Costs

Cubic Feet	Gallons	Charges In City	Charges Suburbs
1,200	9,000	$5.32	$7.98
2,000	15,000	7.40	11.10
4,000	30,000	12.60	18.90

General Data

Population served		17,852
Miles of Mains		61.14
Services	*Number*	*% Metered*
Domestic	4,348	100
Commercial	350	100
Supply—Lake Michigan		
Treatment—chlorine alum		
Plant capacity		14 mgd
Average demand		2.7 mgd

Remarks

1. Board of Public Works maintains no part of service lines.
2. The city pays for the cost of new mains.
3. The city operates both sewer and water services. The sewer department is financed by direct taxation. The advisability of adopting a sewer service charge is now being studied.
4. In rendering the bills, National automatic billing equipment is used.
5. Water rates were last revised September 1, 1954. This revision somewhat affected the water use. No further adjustment of the rates is needed at present.

JAMES HORNUNG
Superintendent
Filtration Plant and Supply
Board of Public Works

INDEPENDENCE, MO.

Rate C—Inside City

Rates Per Quarter

Cubic Feet		Per 100 Cubic Feet
First	800 or less	Minimum
Next	11,200	.50
"	28,000	.38
"	360,000	.28
Excess		.22

Minimum Quarterly Charges

Meter Size (in inches)	Charges
⅝	$5.88
¾	10.08
1	15.12
1½	30.24
2	45.36
3	90.72
4	151.20
6	302.40

Typical Quarterly Costs

Gallons	Cubic Feet	Charges
9,000	1,200	$7.88
15,000	2,000	11.88
30,000	4,000	20.88

Rate E—Peak Season Customers

Rates Per Month

Cubic Feet		Per 100 Cubic Feet Inside City	Rate Area B	Outside These Areas
First	267	$1.96	$2.13	$2.27
Next	3,733	.50	.50	.51
Excess		.38	.38	.38

Minimum Monthly Charges

Meter Size (in inches)	Inside City	Charges Rate Area B and Outside These Areas
1½	$10.08	$10.25
2	15.12	15.29
3	30.24	30.41
4	50.40	50.57
6	100.80	100.97

Charges for off-peak months are rendered according to rates B, C, D—whichever schedule is applicable.
For customers outside city, there is a 17c monthly fire charge included in the water bill.
Schedule B applies to a densely populated area between Independence and Kansas City, outside the city limits of Independence. The only difference from rates within the city of Independence is a 50c per quarter fire protection charge.
Schedule D applies to all customers outside the city limits of Independence not covered in Rate B. Included in the minimum charge for this rate is a 50c quarterly charge for fire protection. Other additional charges are also included in this rate.

Typical Monthly Costs

Gallons	Cubic Feet	Inside City	Rate Area B	Outside These Areas
3,000	400	$2.63	$2.80	$2.95
5,000	667	3.96	4.13	4.31
10,000	1,333	7.29	7.46	7.71

General Data

Population served		79,000
Miles of Mains		337.74
Services	*Number*	*% Metered*
Domestic	21,713	100
Commercial	996	100
Others	45	100
Supply—Wells		
Treatment—The water is treated for iron removal and hardness reduction with lime and chlorine		
Plant Capacity		12 mgd
Average demand		6 mgd

Remarks

1. The Missouri Water Company provides no part of the service lines.
2. The company pays the cost of main extensions provided that (a) they do not exceed $50 for each prospective customer, or, (b) that the cost does not exceed four times the annual revenue to be received from the prospective customer. Costs over either of these amounts to be paid by the prospective customer in advance.
3. The company has nothing to do with sewer services or charges.
4. Water rates were revised May 10, 1938 when they were increased 10%. The effect of the rate adjustment on water use is not yet known.

GARVIN H. DYER
Vice President
Missouri Water Company

MERCED, CALIF.

Rates Per Month

Cubic Feet		Per 100 Cubic Feet
First	1,500	Minimum
Next	2,500	.13
"	6,000	.12
"	30,000	.10
Over	40,000	.075

(Continued on page 173)

Among many others...

The Duo-Washfountain has no faucets—water supply by means of foot treadle.

SYRACUSE PARK PLAYGROUNDS INSTALL BRADLEY SHOWERS AND WASHFOUNTAINS

One of the two 3-person Bradley Shower Units.

In Wilson and Huntington Park Playgrounds Bradley Multi-person Showers provide the most economical shower bath facilities.

One Bradley Column installed near wall serves three bathers—if placed away from wall each column provides for five. One set of piping connections suffices for each three or five showers cutting installation costs. Each bather has control of water temperature and volume.

And for Washing Hands

A foot-controlled Bradley Duo-Washfountain is placed in both the boys' and girls' restrooms. Water is supplied at the touch of the foot treadle from the sprayhead which replaces faucets eliminating all chance of possible infectious contacts. Since the bowl is self-flushing there is never any left-over dirty water.

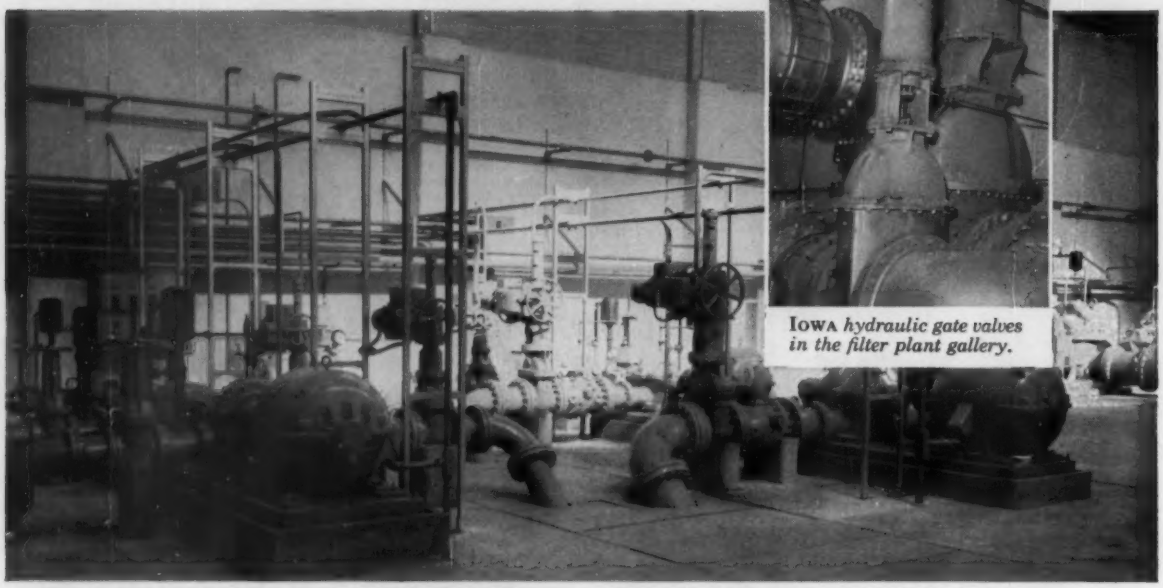
Recreation centers, clubs, swimming pools, ball parks, camps all over the country have found Bradley washing and bathing fixtures without equal—and economical too. To get all details write for our free Catalog 5601 to BRADLEY WASHFOUNTAIN CO., 2333 W. Michigan St., Milwaukee 1, Wis.

Write for Catalog 5601

BRADLEY *washfountains and showers*

Distributed by Plumbing Wholesalers

40 IOWA GATE VALVES...



IOWA *hydraulic gate valves in the filter plant gallery.*

IOWA *motor-operated gate valves installed in the main pump station of North Texas Municipal Water District. (General Manager: Mr. A. P. Rollins; Consulting Engineers: Forrest and Cotton; Design Engineer: Mr. Ormond A. Stone.)*

Control delivery of
20 million gallons of water a day
for the North Texas Municipal Water District

• Forty IOWA Hydraulic and Motor-operated Gate Valves—from 4" to 30" sizes—are used in the Filter Gallery and High Lift Pump Station of the North Texas Municipal Water District, supplying 10 North Texas Municipalities and the District's largest customer, the City of Dallas. Additional IOWA gate valves are used in the six pumping plants operated by the district.

The Filter Plant, located at Wylie, Texas, has a capacity of 20 million gallons a day. However, the design is such that it can operate safely at twice this amount. Water is delivered to the ten member municipalities and the City of Dallas through 90 miles of transmission line, ranging from 12 to 42 inches in diameter.

This Texas application is typical of the ability of IOWA to furnish gate valves to meet the most exacting specifications for plant and distribution service. Be sure and check the wide variety of IOWA valves, accessories and specialties before you place your order.

Let us send you details on Iowa's complete line of valves and hydrants

IOWA
VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.
Oskaloosa, Iowa

Minimum Monthly Charges

Meter Size (in inches)	*Charges*
⅝ x ¾	$2.50
¾	3.25
1	4.00
1½	6.00
2	10.00
3	15.00
4	20.00
6	30.00
8	50.00

Flat-Rate Monthly Service

Amount (in square feet)	*Per Service Connection (per month)*
5,000 or less	$2.70
5,001—5,500	2.80
5,501—6,000	2.90
6,001—6,500	3.00
6,501—7,000	3.10
7,001—7,500	3.20
7,501—8,000	3.30
8,001—8,500	3.40
8,501—9,000	3.50
9,001—9,500	3.60
9,501—10,000	3.70
For each additional 1000 square feet or fraction thereof	.15

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges*
3,000	400	$2.50
5 000	667	2.50
10,000	1,333	2.50

General Data

Population		23,000
Services	*Number*	*% Metered*
Domestic	4,850	10
Commercial	950	100
Supply—well.		
Treatment—none.		
Plant capacity		25 mgd
Average demand		5 mgd

1. Service lines to property line only. Utility bears 50% of cost of new mains.
2. Sewer services not operated by this utility, nor does it bill and collect sewer charges.
3. Burrough's Sensimatic automatic billing machine is used.

GUY B. CORNELL
Superintendent
Merced Water Company

MORRISTOWN, N. J.

Cubic Feet	*Low Service (in town)*	*High Service (in town)*	*High Service (out of town)*
First 20,000	$.035	$0.38	$0.42
Next 50,000	.30	.33	.37
" 130,000	.275	.305	.345
Excess	.23	.26	.30

Out-of-town low service is the same as in-town high service

Minimum Semiannual Charges

Meter Size (in inches)	*Cubic Feet Allowance*	*Low Service (in town)*	*High Service (in town)*	*High Service (out of town)*
⅝	2,000	$7.00	$7.60	$8.40
¾	2,400	8.40	9.12	10.08
1	4,800	16.80	18.24	20.16
1½	9,600	33.60	36.48	40.32
2	19,200	67.20	72.96	80.64
3	28,870	96.40	105.04	116.56
4	45,000	145.00	158.50	176.50
6	60,000	190.00	208.00	232.00
8	90,000	280.00	307.00	345.00
10	135,000	403.75	444.25	498.25

Fire Protection

Connection Size (in inches)	*Charges (per annum)*
3	$50.00
4	75.00
6	125.00
8	200.00

Typical Semiannual Costs

Cubic Feet	*Gallons*	*Low Service Charges*	*High Service Charges (in town)*	*(outside)*
2,400	18,000	$8.40	$9.12	$10.08
4,000	30,000	14.00	15.20	16.80
8,000	60,000	28.00	30.40	33.60

General Data

Population served	35,000
Miles of mains	187
Services (100% metered)	10,431

Supply—surface and subsurface
Treatment—Chloramine; hydrated lime added for Ph correction; no treatment of well supplies
Plant capacity—surface supply has a capacity of 3,000,000 and the subsurface 2.5 to 3 mgd.
Average demand—3.5 to 4 mgd.

Remarks

1. The town provides service lines to the property only.
2. Developers must bear the entire cost of new main extensions.
3. The Water Department is not responsible for the operation of sewer services, but it does bill and collect sewer charges.
4. In billing sewer and water charges, it uses a National Cash Register automatic billing machine.
5. Water rates were last revised July 1, 1957 when they were increased approximately 18%. This did not affect the water use and no further adjustment is needed.

SAMUEL S. TAYLOR
Superintendent
Town Water Department

NEBRASKA CITY, NEB.

Rates Per Month

Cubic Feet	*Per 100 Cubic Feet*
First 300	$1.25 minimum charge
Next 3,700	.28
Next 8,000	.23
Next 8,000	.20
Next 8,000	.15
Next 12,000	.11
Excess	.10

Nebraska City Utilities is wholly self-supporting. It supplies electricity, gas and water. There is no special rate for outside the city. Fire protection charges are $35 per year per hydrant.

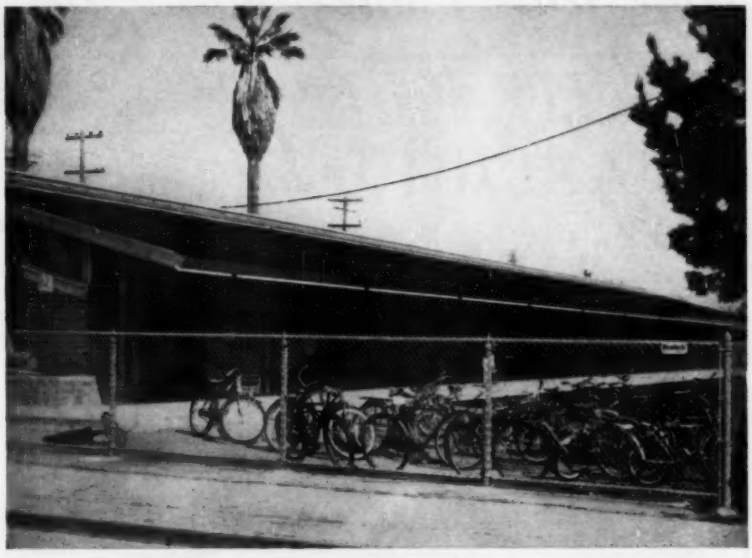
Minimum Monthly Charges

Meter Size (in inches)	*Charges*
⅝	$1.25
¾	2.00
1	3.00
1¼	3.50
1½	4.00
2	5.00
3	7.00
4	9.00

Typical Monthly Costs

Cubic Feet	*Gallons*	*Charges*
400	3,000	$1.53
667	5,000	2.28
1,333	10,000	4.14

(Continued on page 175)



REALOCK FENCE

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General Data

Population served		7,000
Miles of mains		20
Services	*Number*	*% Metered*
Domestic	2,011	100
Commercial	373	100
Other	3	100

Supply—wells
Treatment—softening, water also treated for removal of iron and manganese
Plant capacity ..... 3 mgd
Average demand ..... 1.2 mgd

Remarks

1. Nebraska City Utilities provides no part of the service line.
2. New main extensions in new subdivisions within the city are paid for by the utility.
3. There is no sewer service charge.
4. National Cash Register automatic billing equipment is used.
5. Water rates were last revised in 1957 when they were increased 10%. Water use was not affected and no further adjustment of the rates is necessary.

MAX ENDLEMAN
Sales and Service Manager
Nebraska City Utilities

OSHKOSH, WIS.

Cubic Feet		*Per 100 Cubic Feet*
First	1,000	*Minimum*
Next	2,000	$.20
"	7,000	.14
"	90,000	.11
Excess		.08

Minimum Quarterly Charges

Meter Size (in inches)	*Charges*
⅝	$2.00
¾	2.50
1	3.50
1¼	5.00
1½	7.00
2	10.00
2½	15.00
3	20.00
4	30.00
6	50.00
8	80.00

For suburban service there is a surcharge of 25%.
Rates are established by the Public Service Commission of the State of Wisconsin. Currently, the Board of Water Commissioners is preparing to apply to the commission for a hearing on an increase of rates.
Fire protection charges are billed quarterly on an annual base of $18 per hydrant and 10c per foot of water main in the city.

Typical Quarterly Costs

Cubic Feet	*Gallons*	*Charge*
1,200	9,000	$2.40
2,000	15,000	4.00
4,000	30,000	7.40

General Data

Population served		44,000
Miles of mains		129.3
Services	*Number*	*% Metered*
Domestic	10,964	100
Commercial	91	100
Other	294	100

Supply—Lake Winnebago
Treatment—Alum, carbon, chlorine and fluoride
Average demand ..... 3-4 mgd

Remarks

1. The utility provides service lines to the property only.
2. New mains are laid under the city assessment plan. Refund is made later when the service connection is made and water used.
3. Water rates were last revised in 1953 at which time they were increased. The water use was not affected. Rates need further revision now.

C. C. MARKS
Controller
City Water Department

SHELBYVILLE, TENN.

Gallons		*Per 1,000 Gallons In City*	*Outside*
First	3,000	$0.50	$0.65
Next	2,000	.45	.58
"	5,000	.40	.52
"	5,000	.35	.45
"	5,000	.30	.39
"	30,000	.25	.32
"	50,000	.20	.26
"	200,000	.18	.23
"	200,000	.16	.21
Excess		.15	.20

Monthly Meter Rent

Meter Size (in inches)	*Charges*
¾	0.25
1	1.50
1½	1.75
2	2.50

Fire Protection

Gallons	*Charges In City*	*Outside*
2,500 for one hydrant	$1.25	$1.63
3,000 for bath	1.50	1.95

In addition there is a meter rent charge of 25c per hydrant and bath. There is also a charge of $5 per month for valve heads or fire hydrants.

Typical Monthly Costs

Cubic Feet	*Gallons*	*Charges In City*	*Outside*
400	3,000	$1.50	$1.95
667	5,000	2.40	3.11
1,333	10,000	4.40	5.71

General Data

Population served	12,000
Miles of mains	75
Services (100% metered)	5,420

Supply—Duck River
Treatment—sedimentation, filtration, chlorination and fluorine
Plant capacity ..... 3.1 mgd
Average demand ..... 1.25 mgd

Remarks

1. The Shelbyville Water System provides all parts of the service line to the property.
2. The city stands none of the costs of new mains.
3. The Water System handles sewer charges as well as water charges, and bills and collects for both.
4. No automatic billing equipment is used.
5. Water and sewage rates were last revised in 1954 when they were increased. Water use was affected by the rate revision.

P. J. SCUDDER
Engineer
Shelbyville Water System

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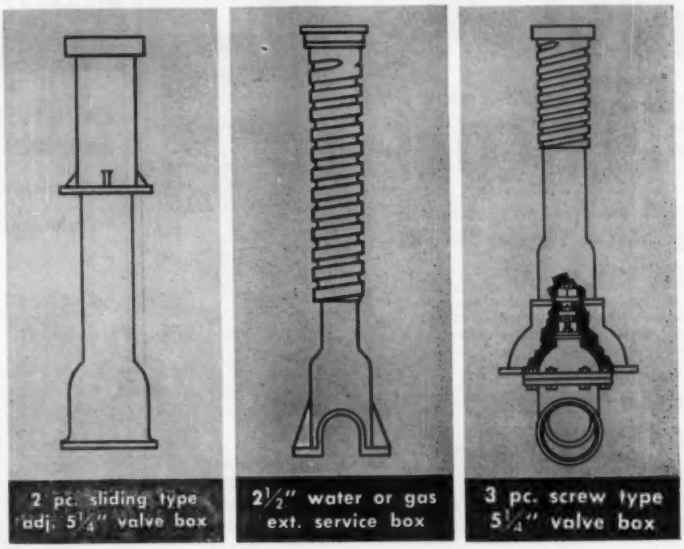

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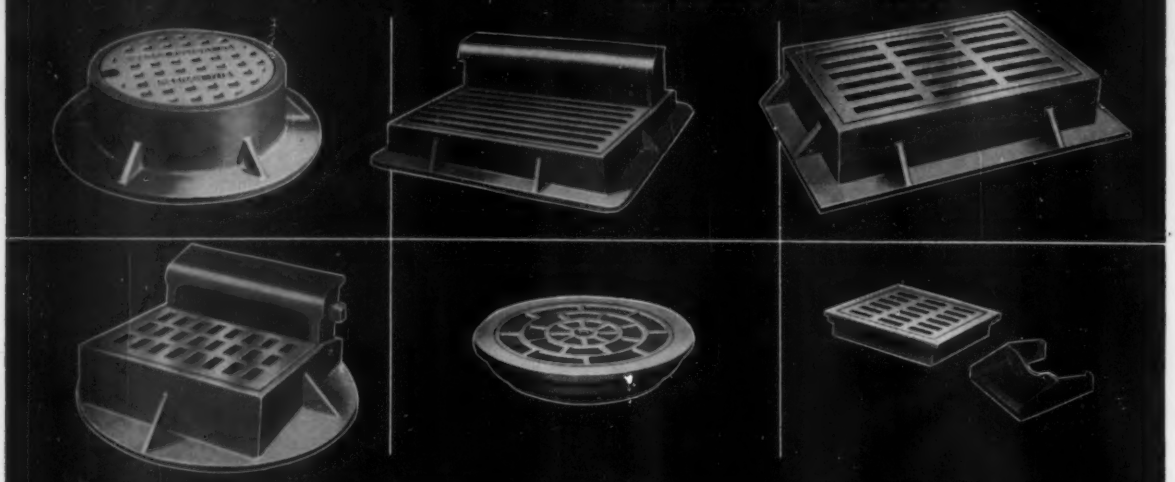

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WRITE FOR LITERATURE

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Edited by NORMAN WILLIAMS, Jr.

Zoning & Planning Notes

Rezoning for Apartments—Comprehensive Plan

NEW JERSEY. *Wollen* v. *Borough of Fort Lee*, 142 Atlantic (2d) 881 (Supreme Court, June 25, 1958).

In this case an undeveloped 44-acre tract, along the Palisades south of the George Washington Bridge, was rezoned (by a borough then in bankruptcy proceedings) for apartment development, with part of the area limited to 6- and part to 14-story buildings. A series of planning consultants had made a succession of differing recommendations on the use of the area. The amendment was recommended by the local "board of liquidation," in order to improve the borough's financial position by providing increased tax revenues. The amendment was challenged as representing favoritism to a proposed developer, on various procedural grounds, and on the ground that several borough councilmen had pledged themselves to vote for it during the previous local election, and therefore could not approach the matter impartially.

As for the latter argument, the Court held as follows:

> "But this is the democratic process; and it would be contrary to the basic principles of a free society to disqualify from service in the popular assembly those who had made pre-election commitments of policy on issues involved in the performance of their sworn legislative duties. Such is not the bias or prejudice upon which the law looks askance. There is no showing that the minds of these councilmen were not open to conviction in the just fulfillment of what they severally conceived to be a solemn obligation to the community. Otherwise, representative democracy would be subverted, and local self-government denied. Here, for example, the local legislative exercise of the constitutionally-secured land-use control as a police function would be rendered nugatory for the time being by the election of municipal governors whose revealed views on policy had coincided with the popular will and had evoked popular approval. And three defeated candidates for the council had made public avowal of their intention to vote against the rezoning of the Palisade East area for multi-family dwellings. The contrary rule of action would frustrate freedom of expression for the enlightenment of the electorate that is of the very essence of our democratic society; it would be a negation of the principle of popular sovereignty. But this is not to say that pre-election pledges shall override constitutional and statutory principle and thus make zoning policy the subject of direct participation by the electorate, in the nature of a referendum. The process is legislative; and the governing body is sworn to conforming legislative action."

The Court held further that the rezoning was in conformity with the comprehensive plan, and that there was no need to readvertise the resolution because of a relatively minor change made in the regulations to provide a buffer zone.

Exclusion of Apartments from Borough

NEW JERSEY. *Fanale* v. *Borough of Hasbrouck Heights*, 139 Atlantic (2d) 749 (Supreme (highest) Court, March 17, 1958).

This case involved a proposal to build a three-story apartment building, with two stores on the ground floor and a total of 21 apartments, in a business district. There were about a dozen apartment developments scattered around the borough, with a total of 573 dwelling units—about 15% of the total; but recent amendments to the zoning ordinance forbade any more apartment buildings there. The lower court held that such a borough could not wholly exclude new apartment buildings, but the highest New Jersey court reversed.

In the opinion, the Court upheld the prohibition against the apartments, in order to protect the borough against congestion and maintain its character as a single-family residential area.

> "Apartment houses are not inherently benign. On the contrary, they present problems of congestion and may have a deleterious impact upon other uses. Accordingly an ordinance has been upheld although it confined apartment houses to a small portion of the municipality. And elsewhere it has been broadly said that circumstances may permit a municipality to zone for a single use to retain its residential character. No definitive pattern can be judicially prescribed; each case must turn upon its own facts."

As the Court recognized, "The issue accordingly is whether Hasbrouck Heights may say that it has enough" apartment houses, and whether it may thus ensure "a well-balanced community." Finally, the Court rejected an argument that more apartment houses were needed in Bergen County, and that this borough should therefore be open to them. One judge (who dissented in *Bogart* v. *Township of Washington*) wrote a special concurring opinion, emphasizing further the point about congestion.

The line of reasoning in this case, while a considerable advance over the frequent vague discussions on zoning in terms of "health, safety, and welfare," illustrates the muddy type of thinking which still prevails even among intelligent courts about the basis of zoning decisions. The reference to preserving the "character of an area" is familiar enough and vague enough; and, while the characteristics involved are not spelled out, these are familiar enough—the preference among many home owners for neighbors who are also home owners and not "renters," on the ground of a presumed superiority in terms of social status, income, relative amount of turnover in occupancy, etc. However, the attempt was made to bring in other arguments to bolster the decision, particularly with regard to the likelihood of increased traffic congestion. Here a three-story apartment building with 21 dwelling units was proposed in the middle of a business district; and it is argued, with apparent seriousness, that this number of apartments will lead to an increase in traffic congestion, right in the middle of the shopping area. The concept indicated here of a "well-balanced community"—with approximately 85% of the dwelling units in one- and two-family houses—is illuminating along the same lines.

Exclusion of Public Schools from Town

CALIFORNIA. *Town of Atherton* v. *Superior Court in and for the County of San Mateo*, 324 Pacific (2d) 328 (District Court of Appeal (intermediate court), April 17, 1958).

CALIFORNIA. *Landi* v. *Superior Court in and for the County of San Mateo*, 324 Pacific (2d) 326 (District Court of Appeal (intermediate court), April 17, 1958).

These two cases involved proposals by two different school districts to build (or expand) schools within the Town of Atherton, where all public buildings are forbidden in residence districts by the local zoning regulations.

In the *Atherton-Superior Court* case, it appeared that Atherton, a residential suburb south of San Francisco with a population of about 7,000, was incorporated explicitly in order to protect its character as a "low density, estate type, residential community," with no business or industrial establishments (except three small non-conforming business uses). Parts of the town were allocated to three different school districts, each of which included a much larger area outside of Atherton. However, several of these school districts had built schools in Atherton, covering some 178 acres (6% of the town's gross area), and these schools had a total enrollment of about 6,000, of whom some 1,600 lived in Atherton. In these circumstances, it is of course not suprising that a town such as Atherton would resist an attempt by two of the school districts to build additional school facilities within the town. On behalf of the town, it was argued that Atherton had more schools per capita than any other city in the county; and a major point was made of the alleged added burden for police protection, traffic control, and public safety for the benefit of students coming from out of town. The school district of course argued that its decisions on site selection were exempt from local zoning control.

In the opinion, the Court held that a school district was a State agency, and that the State had "occupied the field" by taking over full responsibility for regulating site selection decisions by local school districts. In an elaborate (and somewhat confused) review of the State statutes, it was pointed out that, while planning commissions were authorized to make recommendations on school sites, the ultimate decision was left to the school boards. The Court thus held that construction of a school building is a sovereign activity of the State, not subject to local zoning control.

In the *Landi* case, the Court decided that, for the same reasons, one of the other two school districts could condemn an additional acre of ground, in order to enlarge an existing school.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Airports—Low Flights—Equity Court Jurisdiction

In action against county and airlines by adjacent land owners to enjoin flights, recover value from taking, and damages for trespass, held equity court lacked jurisdiction regarding taking or damages. *Gardner* v. *County of Allegheny*, 142 A.2d 187 (Penn., June 3, 1958)

Ambulances—Ordinance Exemption on Speed Upheld

In action involving collision with ambulance, held speed exemption not repealed by later enactment regulating general motor vehicles. *Flanigan* v. *Carswell*, 315 S.W.2d 295 (Tex., July 2, 1958)

Annexation May Cross Legislative Districts

In action to invalidate annexation ordinance on ground that annexation would change boundaries of two legislative districts, held, ordinance constitutional as annexed area remains part of district prescribed by statute. *Buller* v. *City of Omaha*, 82 N.W.2d 578 (Neb., Apr. 19, 1957)

Bonds, Revenue—Parking Lots—Taxpayer May Not Enjoin

In action by taxpayer to enjoin issuance and sale of bonds by city for parking facilities, held taxpayer's rights not injured nor her property affected. *Wilbur* v. *City of Grand Rapids*, 91 N.W.2d 267 (Mich., July 15, 1958)

Building Code—Federal Lessee Must Comply

In action charging violation of building code, held owner could insist federal lessee install fire prevention devices but ultimate responsibility upon owner. *City of Chicago* v. *L. J. Sheridan and Co., Inc.*, 151 N.E.2d 451 (Ill. App., June 4, 1958)

City Employees—Discharge for Crime—Retirement Denied

In action by city board of trustees relative to employee's retirement rights, held discharge for crime without reinstatement precluded retirement benefits regardless of pardon. *Ewing* v. *Dupee*, 104 So.2d 672 (Fla., Sept. 2, 1958)

City Property—Gift to Humane Society Upheld

In action against municipality for conversion, held that municipal authorities can give away property where building had no actual value. *Humane Society* v. *City of Springfield*, 150 N.E.2d 848 (Ill., June 23, 1958)

Convention Hall—City Constructed For Lease Public Purpose

In action by taxpayer, held construction of building with banquet and convention facilities for lease to private concerns proper public purpose. *Haggerty* v. *City of Oakland*, 326 P.2d 957 (Calif., June 19, 1958)

Dance Hall Permit Denied

Substantial evidence supported action of city council in refusing to renew permit for dance hall especially where large number of arrests and disturbances had taken place on premises. *City of Dallas* v. *Stevens*, 310 S.W.2d 750 (Tex. Civ. App., 281 N.H., July 6, 1957)

Federal-City Relations—Housing Project Must Conform to Codes

In action to recover building permit and inspection charges paid under protest by plaintiff to county where United State, as lessor acting through United States Navy, entered into lease with private corporation on condition that lessee-plaintiff construct housing project to revert with land to government at end of 75 years, held, contractor building houses could properly be required to secure permit from county and pay county inspection charges. *Plwilsey Co.* v. *County of San Bernardino*, 317 P.2d 71 (Cal. App., Nov. 8, 1957)

Fire Code Violated By Collecting Combustibles

In prosecution for violating ordinance penalizing those who maintain any inflammable or combustible material in such a manner as to create fire danger to any building or structure, held, conviction affirmed and ordinance constitutional. *Kirkham* v. *City of North Little Rock*, 301 S.W.2d 559 (Ark., May 6, 1957)

Gambling—Lottery Ordinance Upheld

In action challenging ordinance making possession of lottery ticket illegal without intent, held valid although state law required intent. *Smith* v. *City of Albany*, 104 S.E.2d 488 (Ga., June 23, 1958)

Home Rule—Police Department "Local Concern" in Ohio

In action to compel city to revoke police appointment, held matter of local self-government and state interest does not justify interference. *State* v. *Phillips*, 151 N.E.2d 722 (Ohio, July 9, 1958)

Hours—Barber Shops—Statute Invalid

On question whether proposed bill limiting dates and hours barber shops might be kept open, held invalid as not for public health or safety. *In re Opinion of the Justices*, 151 N.E.2d 631 (Mass., July 9, 1958)

Initiative and Referendum May Be Brought to Review Salaries

Vote at limited town meeting which amended compensation classification plan for town employees established under town by-laws was subject to referendum procedure. *Robinson* v. *Selectmen of Watertown*, 146 N.E. 2d 900 (Mass., Dec. 18, 1957).

Intoxicating Liquor License Granted As Church Parsonage Is Not Church Facility

In action to review denial of whiskey license under ordinance prohibiting such licenses for premises whose main entrance is within 500 feet of established church or church facilities, held, license granted since premises is more than 500 feet from church though only 490 feet from parsonage. *Shipbaugh* v. *City of Sarasota*, 94 So.2d 728 (Fla., Apr. 24, 1957)

Labor Unions—Transit Employee Agreement Upheld

In action by union and employees, held authority had power to enter into bargaining agreement where agreement protected civil service and other rights of employees. *Civil Service Forum* v. *New York City Transit Authority*, 150 N.E.2d (N.Y., April 3, 1958)

Milk—Ban on Out-of-State Shipments Upheld

In action by out-of-state producers challenging act requiring out-of-state milk handling to be similar to that of state, held reasonable and not intended to eliminate competition. *James* v. *Todd*, 103 So.2d 19 (Ala., June 5, 1958)

Notice of Claim—Unborn Child Granted Right

In action for injuries of infant, held notice of claimant's pregnancy at time of accident and possibility of injury to unborn child sufficient to apprise city of claim. *Speranza* v. *City of New York*, 171 N.Y.S.2d 604 (N.Y. Sup. Ct., Kings Cty., Mar. 6, 1958)

Parks—Use of By Residents and Theater Group

Municipal regulation limiting use of municipal plunge to residents of city was reasonable and valid, *McClain* v. *City of South Pasadena*, 318 P.2d 199 (Cal. App., Nov. 22, 1957). New York City Park Commissioner had no authority to lease park for musical production without compliance with statutory provisions and obtaining approval of Board of Estimate, *Terrell* v. *Moses*, 163 N.Y.S.2d 770 (N.Y. Sup. Ct., App. Div., June 25, 1957)

Police Pension Denied Janitor

Membership in pension fund is restricted to those engaged in active duties of law enforcement or fire fighting and does not include janitors and other employees of police and fire departments. *Firemen's and Policemen's Civil Service Commission* v. *Wells*, 306 S.W.2d 895 (Tex., Oct. 30, 1957)

Segregation—Golf Course and Swimming Pools—Closing and Sale by City Upheld

Closing and sale of city golf course upheld as local question not involving Federal decree providing any city golf course must be open to all cities. *Griffs* v. *City of Fort Lauderdale*, 104 So.2d 33 (Fla., June 18 1958). Declared policy of city to no longer operate public swimming pools with subsequent sale thereof, held not to violate rights of Negroes denied use. *Tonkins* v. *City of Greensboro, N. C.*, 162 F. Supp. 549 (M.D. N. C., May 23, 1958)

Signs—Gasoline Price—Statute Restricting Invalid

In action for statutory violation in displaying gasoline sign close to right of way, held statute invalid as not related to public safety. *State* v. *Blackburn*, 104 So.2d 19 (Fla., June 18, 1958)

Solicitors—Registration With Police Upheld

In prosecution under ordinance requiring registration of solicitors with chief of police, held not burden on interstate commerce although including orders to be delivered in one state yet shipped from another. *Township of Mount Holly* v. *Omar*, 143 A.2d 600 (N. J., June 13, 1958)

Traffic Ordinance—Hit and Run Upheld

In hit and run action, held state statutory suspension or revocation of license for conviction authorized similar action under municipal ordinance whether accused convicted or pleaded guilty. *City of Columbus* v. *Berry*, 149 N.E.2d 22 (Ohio St., Aug. 9, 1957)

Recent City Manager Appointments

James J. Mott, W. Palm Beach, Fla. | Charles T. Henry, University City, Mo. | James R. Stewart, Clearwater, Fla. | A. A. Bul, Midland, Texas | Robert F. Erwin, Falls Township, Pa. | Jerald D. Stone, Lathrup Villg., Mich.

J. WALTER BARHAM, director of public works, Coos Bay, Ore., was recently appointed the first manager of Coalinga, Calif.

LOUIS G. BARRY, manager of Sylvan Lake, Mich., was recently appointed the first manager of Essexville, Mich. Mr. Barry was previously city clerk and supervisor in Waterford Township, Mich.

S. B. BOYER was recently appointed manager of Athens, Tenn., following the resignation of E. B. Bohannon.

A. A. BUL, urban renewal coordinator for the City of Dallas, Texas, is the new manager of Midland, Texas, succeeding J. M. Orman, now manager at Farmers Branch, Texas.

JAMES R. BURCH, manager for six years at St. Louis and Manistee, Mich., is the new manager of Cadillac, Mich., succeeding L. A. Hanson, now manager at Arlington Heights, Ill.

FRAZER EDMONDS, manager for one year at Wamego, Kans., is the new manager of Commerce, Texas, succeeding M. B. Messler. Mr. Edmonds took office on January 6, 1959.

ROBERT F. ERWIN, Langhorne, Pa., was recently appointed the first manager of Falls Township, Pa.

FRANK D. FARGO, city administrator of Davis, Calif., is the new manager of Santa Maria, Calif., succeeding C. Thomas Bendorf, who has accepted the position of administrative assistant to Senator Clair Engle, Washington, D. C.

WALTER H. HARRIS, administrative assistant at Pomona, Calif., has been appointed manager of Hermosa Beach, Calif., succeeding Chapman L. Bone.

CHARLES T. HENRY, manager for five years at Shorewood, Wis., was recently appointed manager of University City, Mo., succeeding Elder Gunter, now manager at Des Moines, Iowa.

NORMAN W. HICKEY, assistant manager of Fort Lauderdale, Fla. is the new manager at Titusville, Fla., succeeding James Stewart, now manager at Clearwater, Fla.

HUGH B. HINES, JR., manager of Jacksonville, N. C. for the past five years, is the new manager at Rocky Mount, N. C., succeeding S. C. MacIntire, Jr., who retired on December 31. Mr. Hines was previously manager at Sanford, N. C.

GEORGE M. HITCHCOCK, water works superintendent and engineer of Cumberland, Md., was recently appointed manager of Fernandina Beach, Fla., succeeding J. Floyd Glisson, now manager at Fort Pierce, Fla.

GEORGE L. MAJOROS, engineer-planner, has been appointed the first manager of Hickory Township, Pa. Mr. Majoros has a degree in public administration from the University of Michigan, worked in the engineering department, Saginaw, Mich., and was a staff assistant with the Michigan Municipal League.

ROBERT J. MCNUTT, manager of Harper Woods, Mich. for the past three years, is the new manager at Southfield, Mich. Mr. McNutt has previously served as manager at Hazel Park, Mich.

JAMES J. MOTT, former manager of West Palm Beach, Fla. for two years, is the new manager of that city, succeeding Keith R. Chinn. Mr. Mott was formerly employed by the International Cooperation Administration, Teheran, Iran, and is a former manager of Big Gap, Va.

RIDLEY T. NICHOL, manager at Mooresville, N. C. for the past four years, was recently appointed the first manager of College Park, Ga. Mr. Nichol has formerly served as manager at Marple Township, Pa. for three years.

HOMER H. REED, Alexandria, Va., was recently appointed manager of Newport, N. H., succeeding William M. Mims. Mr. Reed has served as administrative assistant to the city manager at Gloucester, Mass.

ALLEN H. SCHERTZ, administrative assistant, Columbia, S. C., is the new manager at Auburn, Ala.

ALBERT K. STEINHEIMER, manager at Paris, Texas for the past three years, was recently appointed manager of Big Spring, Texas, succeeding Herbert W. Whitney, now manager at Corpus Christi, Texas. Mr. Steinheimer has also served as manager at Commerce, Texas.

JAMES R. STEWART, manager of Titusville, Fla. for the past five years, was recently appointed manager of Clearwater, Fla., succeeding Jack Tallent. Mr. Stewart formerly was assistant to the manager of Daytona Beach, Fla., and manager of Dania, Fla.

JERALD D. STONE, city clerk of Lathrup Village, Mich., is the new manager of that city, succeeding Leonard Watchowski, now manager of Roseville, Mich.

FRANK J. STRANGE, assistant manager of Fox Chapel, Pa., was recently appointed manager of Edgewood, Pa., succeeding N. M. Markl, now manager at Ellwood City, Pa.

WADE WINNER, manager for two years at Ross Township, Pa., was recently appointed manager of West View, Pa., succeeding Clarence F. Deem.

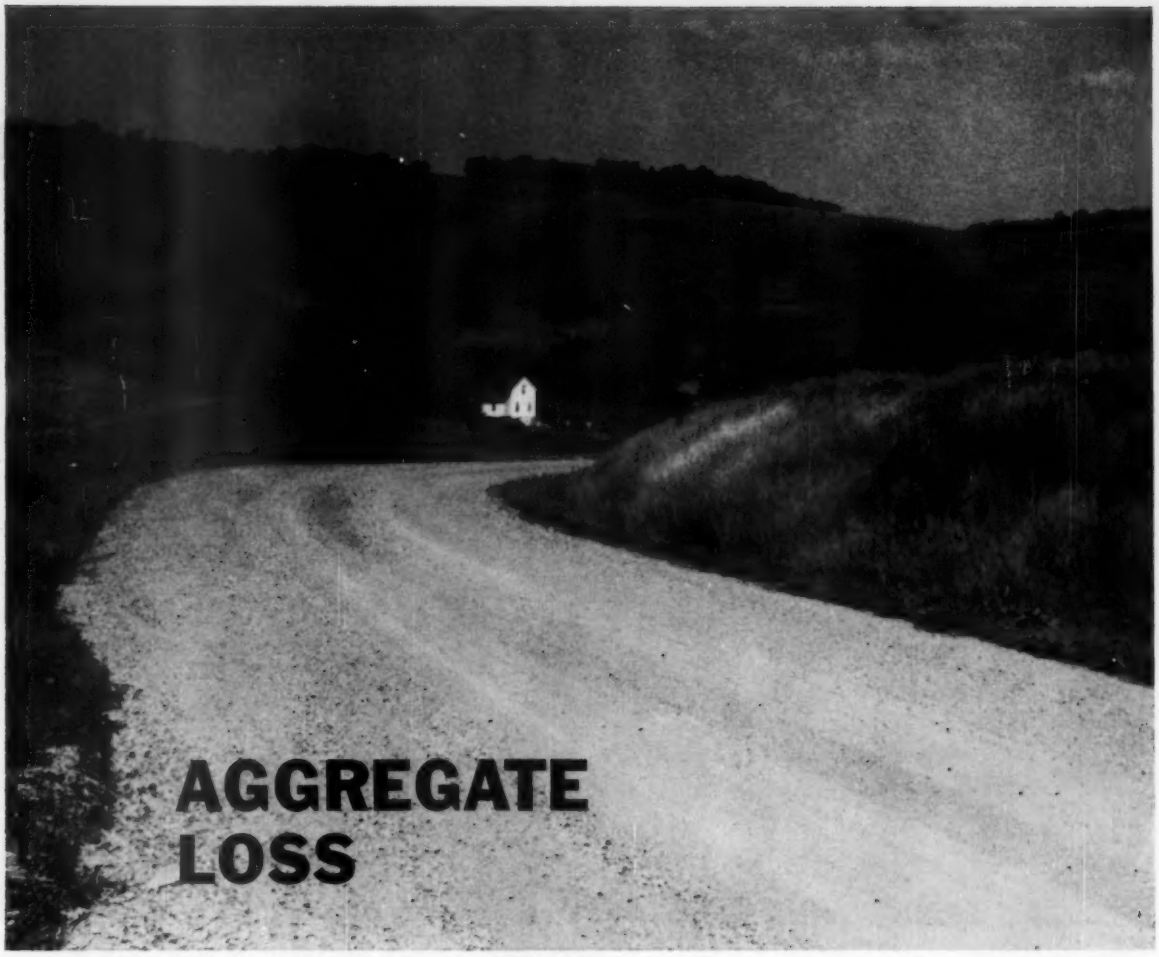
ORIN F. NOLTING
Executive Director
International City Managers' Association

Municipal Telephone Manners

IN HOLLY, Mich., Village Manager Norman E. Tufford has developed a procedure for village employees on the use of the telephone. The guide is designed to make telephone contacts both courteous and helpful. Some of the more essential points are as follows:

- When you answer the phone, say "Good morning, Village of Holly, Miss (or Mr. ..... speaking," and smile.
- Listen carefully, make notes. Use the complaint blank to take down the name, address, type of request and details.
- When the caller has finished, ask permission to read the notes back. If he asks for changes, make them graciously.
- If the call covers a complaint, apologize for the failure in service.
- Thank the caller cordially for calling.
- If it is necessary to find out who the caller is, do so tactfully, using a phrase like, "May I ask who is calling please?"

A copy of the procedure manual can be had from Manager Tufford.



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Special equipment is no longer needed for effective salt treatment of gravel roads. Last year, International Salt Company introduced a simple, practical 7-step method which is fully described in a free booklet, "Better Roads." Send today for your free copy, and learn how Sterling Rock Salt treatment can work in your area.

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*Address*_____

*City*_____ *State*_____

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Deep, wide gutters and sharp curbs, steep hills and heavy beach sand are no problem . . this machine is designed for "tough going." Safety cab protects operator from low-hanging trees — yet gives clear front and back visibility. Big hydraulic power brakes on all four wheels give you truly safe operation when carrying heavy loads of debris.

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Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

February 9-11—New York, N. Y.
ASSOCIATION OF TOWNS OF THE STATE OF NEW YORK. Annual Meeting (Commodore Hotel). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

February 24-27—Berkeley, Calif.
CALIFORNIA MUNICIPAL UTILITIES ASSOCIATION. Annual Convention (Claremont Hotel). Sec., F. V. Frey, 100 N. Garfield Ave., Pasadena, Calif.

February 26—Washington, D. C.
BUILDING INDUSTRY CONGRESS. Annual Congress (National Housing Center). Tech. Mgr., Robert F. Foeller, American Council to Improve Our Neighborhoods, Box 462, Radio City Station, New York 20, N. Y.

March 10-13—Atlantic City, N. J.
NEW JERSEY SEWAGE & INDUSTRIAL WASTES ASSOCIATION. Annual Convention (Traymore Hotel). Sec.-Treas., Michael S. Kachorsky, P. O. Box 68, Manville, N. J.

March 11-13—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION—Illinois Section. Annual Meeting (Morrison Hotel). Exec. Sec., Dewey Johnson, 3440 Prudential Plaza, Chicago, Ill.

***March 15-18—Washington, D. C.**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. National Urban County Congress (Mayflower Hotel). Exec. Dir., Bernard F. Hillenbrand, 1001 Connecticut Ave., N.W. Washington 6, D. C.

March 16-18—Little Rock, Ark.
ARKANSAS WATER AND SEWAGE CONFERENCE. Annual Meeting (Marion Hotel). Sec., C. W. Oxford, College of Engineering, Fayetteville, Ark.

March 17-19—Atlantic City, N. J.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Meeting (Traymore Hotel). Sec., Kenneth D. Rice, 1035 Parkway Ave., Trenton, N. J.

March 25-29—Palm Beach, Fla.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Palm Beach Biltmore Hotel). Man. Dir., Howard F. Peckworth, 228 N. La Salle St., Chicago 1, Ill.

April 1-4—Washington, D. C.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Convention (Hotel Statler). Asst. Dir., John P. Kieth, 6042 Kimbark Ave., Chicago 37, Ill.

April 2-3—Chapel Hill, N. C.
SOUTHERN MUNICIPAL AND INDUSTRIAL WASTE CONFERENCE. Annual Meeting (University of North Carolina). For information address Dr. Daniel A. Okun, Department of Sanitary Engineering, School of Public Health, University of North Carolina, Chapel Hill, N. C.

April 5-8—Columbia, S. C.
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Wade Hampton Hotel). Exec. Sec., N. M. DeJarnette, Georgia Dept. of Public Works, 209 State Office Bldg., Atlanta 3, Ga.

April 9-11—Glendive, Mont.
AMERICAN WATER WORKS ASSOCIATION—Montana Section jointly with Montana Sewage and Industrial Wastes Association. Annual Meeting (Jordan Hotel). Sec.-Treas., A. W. Clarkson, c/o State Board of Health, Helena, Mont.

April 15-17—Lincoln, Nebr.
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Meeting (Cornhusker Hotel). Sec., Rupert C. Ott Jr., Representative, Neptune Meter Co., 2818 21st St., Columbus, Nebr.

April 16-18—Phoenix, Ariz.
ARIZONA SEWAGE AND WATER WORKS ASSOCIATION. Annual Meeting (Hiway House). Exec. Sec., Stanford I. Roth, 717 W. Cambridge Avenue, Phoenix, Ariz.

April 22-24—Hutchinson, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section jointly with Kansas Sewage and Industrial Wastes Association. Annual Meeting (Baker Hotel). Sec.-Treas., H. W. Bradley, 119 W. Cloud, Salina, Kans.

April 22-25—Vancouver, B. C.
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Vancouver Hotel). Sec.-Treas., Fred D. Jones, W. 218 Maxwell Ave., Spokane 11, Wash.

April 29-May 2—Long Beach, Calif.
CALIFORNIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (La-Fayette Hotel). Sec.-Treas., A. D. Leipzig. 12000 Vista Del Mar, Venice, Calif.

***May 3-6—Montreal, Canada**
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting (Queen Elizabeth Hotel). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Ont.

May 5-7—West Lafayette, Ind.
PURDUE INDUSTRIAL WASTE CONFERENCE. Annual Meeting (Purdue Memorial Bldg.). Exec. Sec., Don E. Bloodgood, Professor of Sanitary Engineering, Civil Engineering Bldg., Purdue Univ., Lafayette, Ind.

May 10-14—Minneapolis, Minn.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Hotel Leamington). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

May 13-15—Washington, D. C.
NATIONAL RIVERS AND HARBORS CONGRESS. Annual Convention (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., N.W., Washington 6, D. C.

May 14-16—Jamestown, N. Y.
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Jamestown Hotel). Sec., Edwin J. Clark, Box 328, Wayne, Pa.

***May 18-21—Miami, Fla.**
NATIONAL INSTITUTE OF MUNICIPAL CLERKS Annual Convention (McAllister Hotel). Sec.-Treas., Arthur J. Shinners, Town Hall, Brookline, Mass.

May 24-26—Gatlinberg, Tenn.
TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Riverside Hotel). Exec. Sec., Herbert J. Bingham, L & C Tower, 18th Floor, Nashville, Tenn.

May 26-28—Seattle, Wash.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Olympic Hotel). Gen. Mgr., Alex Radin, 1025 Connecticut Ave., N.W., Washington 6, D. C.

June 1-5—Atlantic City, N. J.
NATIONAL FIRE PROTECTION ASSOCIATION—Annual Meeting (Dennis-Shelburne Hotel). Asst. Gen. Mgr., Charles S. Morgan, 60 Batterymarch St., Boston, Mass.

***June 7-11—Montreal, Canada**
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Queen Elizabeth Hotel). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

***June 17-19—Memphis, Tenn.**
NATIONAL CITIZENS PLANNING CONFERENCE OF THE AMERICAN PLANNING AND CIVIC ASSOCIATION. Annual Meeting (Civic Auditorium). Exec. Dir., Charles A. Phelan, Jr., 901 Union Trust Bldg., Washington 5, D. C.

June 19-23—West Berlin, Germany
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Congress on Social Services of Cities. For information, address Orin F. Nolting, International City Managers Association, 1313 E. 60th St., Chicago 37, Ill.

***July 12-15—Los Angeles, Calif.**
UNITED STATES CONFERENCE OF MAYORS. Annual Meeting (Statler-Hilton Hotel). Exec. Dir., Harry R. Betters, 1707 H. St. N.W., Washington 6, D. C.

July 12-17—San Francisco, Calif.
AMERICAN WATER WORKS ASSOCIATION—Annual Convention (Civic Auditorium). Exec. Sec., Harry E. Jordon, American Water Works Association, 2 Park Avenue, New York, N. Y.

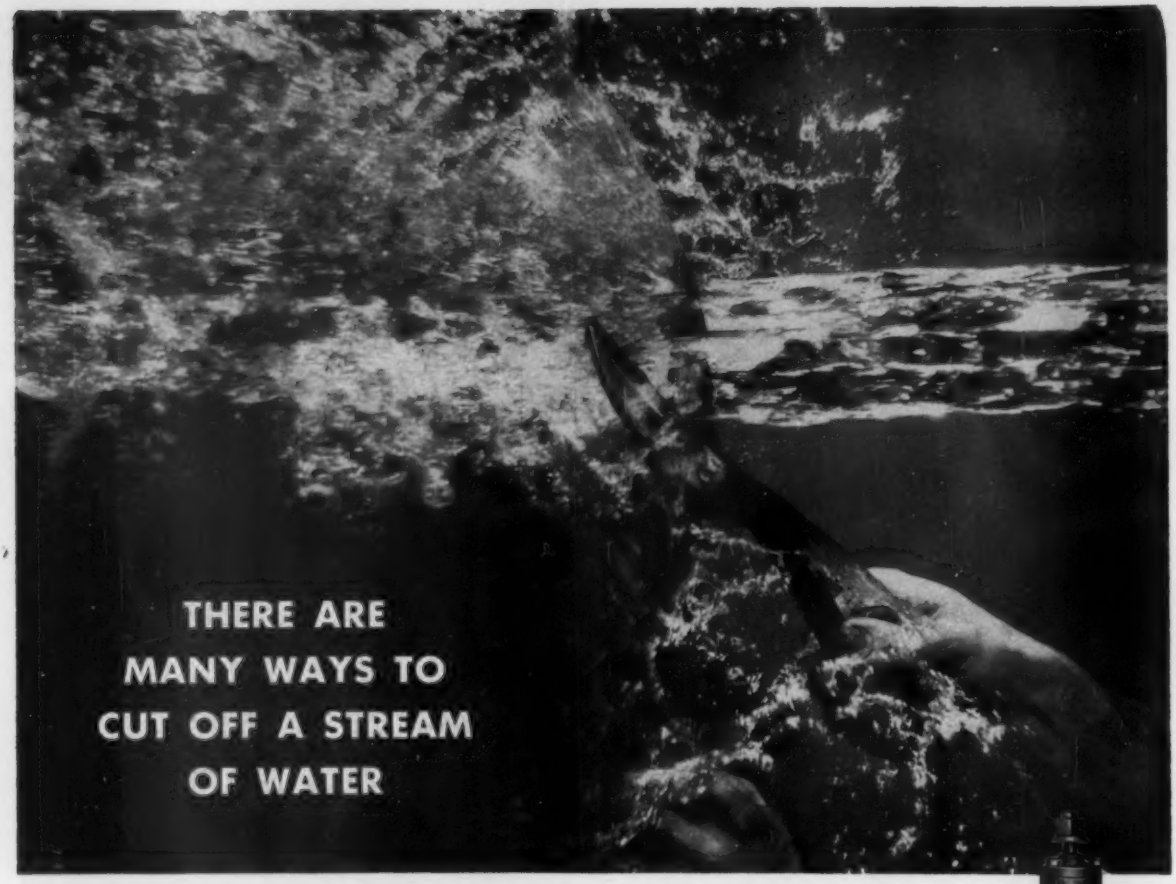
***July 26-29—Detroit, Mich.**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS Annual Conference and Products Exhibit (Statler-Hilton and Sheraton-Cadillac Hotels). Exec. Sec., Bernard F. Hillenbrand, 1001 Connecticut Ave. N.W., Washington 6, D. C.

September 20-23—Seattle, Wash.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Olympic Hotel). Exec. Dir., Robert D. Bugher, 1313 E. 60th St., Chicago 37, Ill.

October 11-15—Dallas, Texas
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Convention (Memorial Auditorium). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N. W., Washington 16, D. C.

***October 11-14—Cleveland, Ohio**
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Products Exhibit (Hotel Cleveland-Sheraton). Gen. Chairman, Leo Weil, Commissioner of Purchases and Supplies, Cleveland, Ohio.

***October 24-29—St. Louis, Mo.**
INTERNATIONAL CITY MANAGER'S ASSOCIATION. Annual Convention (Chase and Park Plaza Hotels). Exec. Dir., Orin F. Nolting, 1313 E. 60th St., Chicago 37, Ill.



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Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

Street Life Study

ROAD-LIFE-STUDY MANUAL OF PROCEDURE—*Prepared by Gordon F. Seidel. Milwaukee Department of Works, Bureau of Engineers, Street Construction Division, Milwaukee, Wis.* 1957. 117 *pp.*

This manual was prepared in cooperation with the United States Bureau of Public Roads and the Wisconsin State Highway Commission. It has gathered together material pertaining to construction features for existing streets and historical data relating to past construction and retirement experiences; the information is illustrated by well-drawn diagrams making this one of the most comprehensive studies on this subject. The manual should be on the shelf of every city manager and road construction engineer.

A City Manager's Aide

THE ROLE OF THE ASSISTANT TO THE CITY MANAGER *with preface by Orin F. Nolting. International City Managers Association.* 1313 *East 60th St., Chicago* 37, *Ill. August* 1958. 48 *pp.* $2.

This is a report of the Advisory Committee on the role of an assistant to the City Manager. It is very readable and ought to be instructive to both city manager and his assistant.

Redesign in City Planning

REDESIGN OF DOWNTOWN PASSAIC—*By the Passaic Valley Citizen Planning Association, Passaic, N. J. April* 1958. 49 *pp.*

This report of the Board of Commissioners of the City of Passaic is distinctive in form and clearly illustrated with diagrams; it is altogether a very comprehensive study of Passaic's traffic situation with conclusions and recommendations. It has only regional interest.

City Ordinance

SWIMMING POOL ORDINANCE *issued May* 1958 *by City of Olivette, Mo.* 16 *pp. Paperbound.* $1.

A little pamphlet containing all the rules and regulations for guidance in the construction and maintenance of swimming pools, public and private. It is comprehensive and lucid and has earned the city the National Award at the convention of the National Swimming Pool Institute held last December in Los Angeles. It should be read by all city fathers and "do-it-yourself" swimming pool builders.

If Your City Has a Parking Problem

PARKING—*By Geoffrey Baker & Bruno Funaro. Reinhold Publishing Corp.,* 430 *Park Ave., New York* 22. 1958. 202 *pp.* $9.50.

"A man walking uses 8 sq. ft. In a car he requires 200 sq. ft. standing still and, at 35 mph, 600 sq. ft."

That's the way this handbook on parking opens. It closes with an excellent index to the important facts on how much and what kind of parking should be provided in your city. Nine pages of tables show for any parking angles, the stall and aisle widths and the number of rows of cars which can be fitted on any parking lot.

Ample consideration is given to both ramp and elevator garages. Numerous designs and sizes are illustrated and their economies set forth. The importance and method of making a traffic survey are shown. The questions to be asked of car drivers are: How did you get here? Why did you come? How often do you come here? If you came by car, how far away did you park it? For how long? The answers will provide a close estimate of how many long-term and short-term parkers there are.

This book is practical. It will help city engineers, city council committees on traffic and parking, members of planning boards and commissions to study their local problem and work out the solution to that particular problem.

Urban Housing

THE CHALLENGE OF URBAN RENEWAL—*By M. Carter McFarland. Technical Bulletin No.* 34, *Urban Land Institute, Washington, D. C.* 1958. 44 *pp.* $3.

This pamphlet presents the personal opinions of Mr. McFarland, the director of the division of economics and program studies of the Housing and Home Finance Agency in Washington, D. C. It advocates more far-sighted planning and urges the need for broadening the present program of urban renewal and development.

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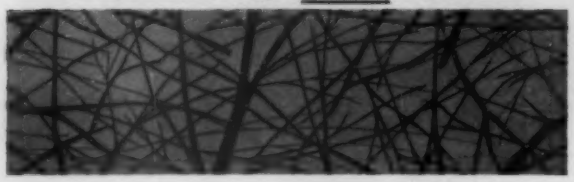

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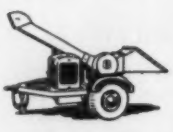

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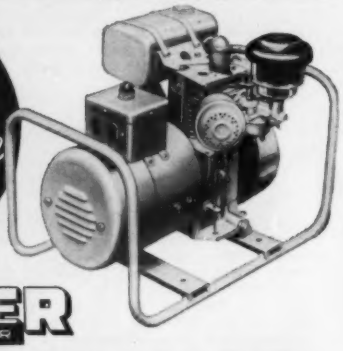

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Municipal Administration

EDUCATION FOR ADMINISTRATIVE CAREERS IN GOVERNMENT SERVICE—*Edited by Stephen B. Sweeney. University of Pennsylvania Press, 3436 Walnut Street, Philadelphia 4, Pa.* 366 *pp.* $7.

A collection of papers delivered at the University's Institute of Local and State Government commemorating the Institute's 25th anniversary. The text reveals the helpful amount of information now available to the official in the local government field. Part II is probably the most helpful, discussing the administrator's role of leadership, responsibilities, and knowledge needed. Dr. Sweeney's reference to "administrative policy-making officers" is revealing, particularly in light of the long-time practice of most administrators to stay away from policy making.

Housing Report

THE PEOPLE DECIDE FOR HOUSING—*A report from Joseph P. McMurray, Executive Department Division of Housing, Albany, N. Y. Paperbound with photograph. Illustrations.* 75 *pp.*

Mr. McMurray is the outgoing Commissioner of New York State Housing and his report is a summation of his four-year stewardship of state housing, slum clearance and urban redevelopment program under the Harriman administration. It is readable and well-compiled, though perhaps expensive legacy for the new Rockefeller administration.

Social Change

DESEGREGATION — *By Melvin M. Tumin. Princeton University Press, Princeton, N. J.* 270 *pp.* $5.

An interesting and already rather well known little book documenting social change. It tries to uncover those groups in the South now ready to accept desegregation and discloses the obvious fact that those who have reason to fear it the least are the most prepared. In general, they are those whose educational attainments and cultural advancements make them feel more confident that their place in society would not be undermined by this change. Of particular interest is the great willingness of Southern people to discuss this with Northern investigators on a factual, relatively unemotional, basis. The book represents the attitudes of "287 White males, 18 years or older, who are members of the labor force in Guilford County, North Carolina."

Woodrow Wilson Centennial

THE PHILOSOPHY AND POLICIES OF WOODROW WILSON—*Edited by Earl Latham for the American Political Science Association. University of Chicago Press, Chicago 37, Ill.* 1958. 267 *pp. Paperbound.*

In 1956, the American Political Science Association celebrated the centennial of Woodrow Wilson's birth. Earl Latham has collected some of the papers delivered before the Association on this occasion, in addition to other monographs prepared honoring Wilson. The result is a very interesting series of articles on Woodrow Wilson—his nature and personality, his theories of government and contributions to the field of political science. The papers also give one an insight into Wilson as an administrator. Together they give a clear picture of why Wilson is considered one of the seven greatest presidents of the United States.

Community Economic Development Programs

THE CITY'S ROLE IN ECONOMIC DEVELOPMENT—*Management Information Service, Report No. 177, October* 1958. *International City Managers' Association, 1313 East 60th St., Chicago 37, Ill.* 15 *pp. Paper. Available to subscribers only.*

There are four main steps involved in developing a community's economic development program: community analysis, organizing for development, house cleaning and promotion. This report concerns itself with the first three steps, covering each one in detail. In addition, it points out some of the tools generally available to communities for their programs, such as business promotion programs, subsidies and redevelopment.

Urban Living

METROPOLITAN ANALYSIS—*Edited by Stephen B. Sweeney. University of Pennsylvania Press,* 3436 *Walnut St., Philadelphia* 4, *Pa.* 189 *pp.* $4.50.

A collection of papers aimed at the problems of area-wide government in urban society. A portion is devoted to assessing problems and is concerned chiefly with the Philadelphia area. The last section presents an analysis of the experience in Los Angeles, Boston, and Toronto where area-wide governmental organizations have been developed and are functioning.

REPRESENTATIVE MUNICIPAL BOND ISSUES

From December 2, 1958 to January 19, 1959

Date of Issue	*Locality*	*Amount in $1000*	*Purpose*	*Term Yrs. to Maturity*	*Rate of Int.*	*Yield %*
12/ 2/58	Brunswick, Maine	101	School Construction	16½	3.20	3.12
12/ 2/58	Scio, Ohio	65	Waterworks Construction	14	4¼	4.19
12/ 4/58	Coshocton, Ohio	178	Sewage Improvement	14½	3½	3.46
12/ 4/58	East Liverpool, Ohio	200	Sewage Improvement	11½	3½	3.48
12/ 5/58	Callan Co. Wash.	20	General Obligation	6⅔	3¼	3.234
12/ 5/58	Copley Tp., Ohio	127	Road Improvement	6	3¼	3.21
12/ 8/58	Cedar Grove, N. J.	862	Water and Sewage	12¼	3¾	3.74
12/ 8/58	Rose Twp., Pa.	300	Sanitary Sewage Construction	8	3½	3.105
12/10/58	Canton, N. Y.	160	Waterworks Construction	16½	3.90	3.871
12/10/58	Freeport, N. Y.	890	Public Improvement	3½	3.30	3.29
12/10/58	Mount Vernon, N. Y.	1,068	Street & Sewage Construction	4–8	2¾	2.735
12/17/58	Pittsfield, Mass.	600	New Water Supply Construction	10½	2.90	2.896
12/17/58	Cheektowaga, N. Y.	446	General Improvement	4–10	3.60	3.57
12/18/58	Hudson, Co., N. J.	1,737	Various Purposes	11½	3.60	3.576
12/18/58	Massena, N. Y.	850	Sewage Construction	13⅔	3.60	3.53
12/22/58	Lawrence, Ind.	325	Waterwork Refunding	21½	4	3.99
12/29/58	Lima, Ohio	500	Waterworks Improvement	15½	3¾	3.65
12/30/58	Carthage, Ind.	120	Waterworks Refunding	26	4⅖	4.325
1/ 7/59	Brockport, N. Y.	1,700	WaterSupply Construction	16	3½	3.48

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Rochester, N. Y., puts its 14 Austin-Western Model 40 sweepers on parade for this picture in the city's Public Works yard.

14 clean-sweeping Austin-Westerns create good will for Rochester, N.Y., officials

"Our fleet of 14 Austin-Western Model 40 sweepers helps us build good will with the public. They do a clean sweeping job, quietly, and at a low cost per mile," says Frank Vicaretti, Street Cleaning Superintendent, Rochester, N. Y.

Maneuverability, increased safety

"I like the maneuverability of front wheel steering . . . lets us sweep closer to parked cars," Mr. Vicaretti says. "It's also an important safety factor, because the operator is right up front where he can see the gutter broom and the road ahead at all times.

"Our sweepers have dual gutter brooms. We can sweep on the right or left side without bucking the flow of traffic.

"Maintenance on the A-Ws is always low because of the unique conveying system. The A-Ws are designed for easy service and maintenance. We've had little or no downtime on them.

Hopper easy to fill, empty

"The hopper is rated at 2 cu. yd. But we find we can easily get more in because of the compressing action of the rear broom sweeping direct into the hopper. The rear dumping action speeds emptying . . . permits sweeper to dump without interrupting forward motion.

"We're sold on Austin-Western sweepers in Rochester. They're excellent good-will ambassadors to the public!"

Two models of A-W sweepers are available—Model 40, 2-cu.-yd. hopper; and 4-plus cu. yd. Model 60. Learn now why more and more municipal administrations everywhere are earning public good will because high-performance A-W sweepers sweep their streets cleaner!

Contact your nearby Austin-Western distributor or write direct.

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A Plea for Unity

WORKING TOGETHER FOR URBAN RENEWAL—*A guidebook on Why, When and How Social Welfare Agencies and Urban Renewal Agencies Should Work Together. National Association of Housing and Redevelopment Officials, 1313 East 60th St., Chicago 37, Ill.* 1958. 26 *pp.* $1.

A useful little booklet for social workers and welfare agencies and it can be read with profit by the interested lay public, too.

Expressway Effects

PROGRESS REPORT No. 1—*By George W. Childs;* PROGRESS REPORT No. 2, *by Joseph W. Harrison. Virginia Council of Highway Investigation and Research, Charlottesville, Va. April and October, 1958 respectively.* 40 *pp. each.*

The first deals with the influence of limited access highways on land value and land use. The second with the economic effects of the U. S. Route 11 bypass at Lexington on business volume and composition. Both are well-documented with charts.

Property Tax

ILLINOIS PROPERTY TAX PROCEDURES MANUAL—*By Thomas Page, Irving Howards and Norman G. P. Krausz. The Institute of Government and Public Affairs, University of Illinois, Urbana, Ill.* 1958. 1,013 *pp. Loosebound.* $5.

This is an exceedingly comprehensive manual on property tax and assessment, clear and concisely stated and well indexed. It should be of inestimable value to lawyers, tax accountants, and estate administrators.

Municipal Finance Reports

EVALUATION OF MUNICIPAL SECURITIES AS A GUIDE FOR BETTER FINANCIAL REPORTING—*By Raymond E. Hengren. Special Bulletin* 1958C. *Municipal Finance Officers Association of the United States and Canada,* 1313 *East* 60*th St., Chicago* 37, *Ill.* 1958. 8 *pp.* 75*c.*

Municipalities planning bond issues in the near future may refer to this bulletin to see if they are supplying enough credit information for banks that might be interested in purchasing their securities. Recently bank credit information requirements have become even more stringent.

This bulletin points out what kind of information banks and security dealers are looking for and what are the pitfalls for many an unwary municipal finance officer.

Other Reports Received

Annual Reports

CORAL GABLES, FLA.—1958 Annual Financial Report. Office of City Manager, City Hall. 1958.

Community & Industry

WISCONSIN—Community Industrial Development in Wisconsin; How? Why? R. J. Colbert, Bureau of Community Development, University Extension Division, University of Wisconsin, Madison, Wis. 1958.

Health

GENERAL—Health and Welfare Issues in Community Planning for the Problem of Indigent Disability. Part II. Community Research Associates, Inc., 124 East 40th St., New York, N. Y. 1958.

Lighting

GENERAL—Load Calculations for Airport Runway and Taxiway Lighting Circuits. Airport Engineering Bulletin No. 7, 1958. Office of Airports, CAA, U. S. Department of Commerce, Washington, D. C.

Parks & Recreation

ARLINGTON COUNTY, VA.—Annual Report, Department of Recreation and Parks. County Court House, Arlington 1. 1958.

BEND, ORE.—Annual Report on Parks and Recreation. City Planning Commission, City Hall. 1958.

UNION COUNTY, N. J.—Report of the Union County Park Commission, 1947-1957. Warinanco Park, Elizabeth. 1958.

Planning-Zoning-Housing

GENERAL—The Text of a Model Zoning Ordinance with Commentary. Public Administration Clearing Service, University of Florida, Gainesville, Fla. 1958. $1.

SAGINAW, MICH.—Housing Survey: Eddy Urban Renewal Area. Department of Planning, City Hall. 1958.

WASHINGTON, D. C.—Annual Report of the National Capital Housing Authority for Year Ending June 1957. National Capital Housing Authority, Washington, D. C. 1958.

Public Safety

GENERAL—The Rural Fire Department's Program of Pre-Fire Planning and Fire Prevention. National Fire Protection Association, Boston 10, Mass. 1958. 50 cents.

SYRACUSE, N. Y.—Duplication and Conflict in the Proposed Fire Prevention Code. Bureau of Municipal Research, City Hall. 1958.

Traffic

BERGEN COUNTY, N. J.—Exploratory Study of Possible Alignments for a North-South Limited Access Highway. Board of Chosen Freeholders, County Court House, Hackensack, N. J. 1958. $2.

Urban Renewal & Redevelopment

GENERAL—Publications Relating to Urban Renewal for 1957. Public Library, Washington 1, D. C. 1958. 5c envelope.

BALTIMORE, MD.—It's Happening in Baltimore! 1957 Annual Report of City Urban Renewal and Housing Agency, Baltimore 3. 1958.

——Mount Royal Plaza—Urban Renewal Area 12. City Urban Renewal and Housing Agency, Baltimore 3. 1958.

Water

GENERAL—Pollution Control: Fact or Fiction. Address by James R. Harlan. Bureau of State Services, U. S. Public Health Service, Washington 25, D. C. 1958.

GENERAL—National Growth and Water Resources. Address by Surgeon-General L. E. Burney. U. S. Public Health Service, Washington 25, D. C. 1958.

NEW YORK, N. Y.—Annual Report of City Board of Water Supply, City Hall, 1958.

Massive 8 to 10-ton Austin-Western tandem roller barely kisses Detroit street curbing as it compacts binder layer on resurfacing project.

Smooth 'n' easy control lets Detroit's Austin-Western roller work curb kissin' close

"Our Austin-Western tandem roller is an excellent piece of equipment," says Jack Lezotte, Detroit's Department of Public Works maintenance supervisor.

Low maintenance, plenty of power

"We bought it new in April 1958 and so far it has been working a 40-hour week without any maintenance requirements other than routine servicing," Mr. Lezotte tells us. This 8 to 10-ton roller has so much power it rolls along as smooth as a baby buggy and does a precision compaction job.

"The hydraulic steering pump is a nice standard feature on the A-W. It gives plenty of smooth 'n' easy control for work so close it barely kisses the curbing." A-W hydraulic steering is safe, too, because the pump works even if the engine is off. That means sure control even when under tow or to roll down ramps or inclines in emergencies.

Other exclusive A-W features

Other exclusive A-W features include full-width seats for better visibility; long-life oversize axles and antifriction bearings; many interchangeable parts; beveled outside roller edges that won't mark hot materials.

A-W tandems available in 5 to 8, 8 to 12, 10 to 14-ton models; 3-wheel rollers in 8 to 11, 10 to 12, 12 to 14-ton models. Portable tandem variable between 3½ to 6 tons. Choice of gasoline or diesel power. Standard—2-speed transmission with torque converter or 4-speed transmission. Optional—torque converter with 4-speed transmission.

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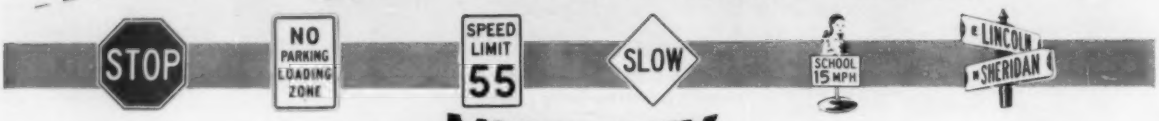

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CHICAGO, Jan. 1st—Just introduced is a Free Booklet on a New Discovery which enables the Janitor, Maintenance Man, or Home Owner to clean any clogged Sewer Drain.

Yet anyone can operate this new **Plumbers Flushing Gun** which releases air pressure on a solid shaft of water cleaning the most stubborn stoppages up to 200 feet. TOILETS, SINKS, URINALS, BATHTUBS, FLOOR DRAINS, and HOUSE-TO-STREET SEWERS clogged with Grease, Rags, Sand, Roots and paper melt away instantly when struck by the Hammer-like blow of this new unit.

There is no need to remove wall or pipe, or Grease Trap. A special attachment allows water to flow from the faucet through the Gun while air is released on the pipe. Vents or stacks are no obstacle, as force tends to strike wherever the water lays. But now, what is this Plumbers Flushing Gun worth in **COSTLY PLUMBING BILLS SAVED?** Tear this Ad out now—and write your name and address beside it for **FREE BOOKLET.** Obey that urge. No agent will call. A postcard will do (Chicago Phone KIldare 5-1702).

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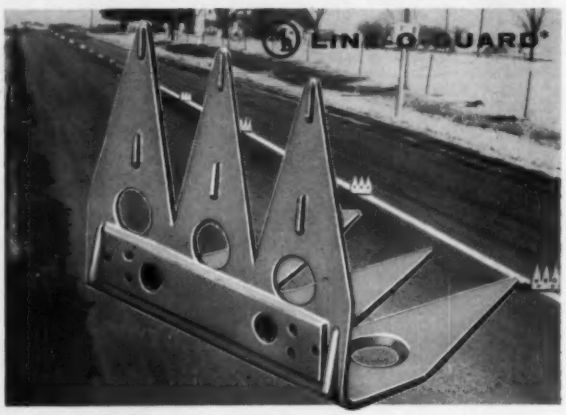

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There's never been a safety traffic guide that "speaks with authority" like the Line-O-Guard! Here is positive protection for newly painted traffic lines . . . protects motorists from road hazards. Polyethylene plastic takes roughest treatment. Line-O-Guard is effective in any position . . . has low wind resistance. Write the M-B Corporation, New Holstein, Wis. for full details.

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Where to Purchase

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

Stabilene Film Plat Books in Register's Office

John M. Deegan, Hudson County Register with the new (left) and old plat books. County Court House, Jersey City, N. J.

Soon after his appointment as Register of Hudson County, N. J., John M. Deegan noticed the run-down condition of the zoning map books. Time was being lost during title examinations because of obliterated map information. Considerable expense was involved when the maps had to be replaced every two or three years. The fact was mentioned in the course of a routine conversation with a salesman.

Within a month, engineers of Keuffel & Esser, Hoboken, N. J. developed a form of Stabilene, a stabilized film which is moisture-proof, and cleanable with soap and water. We used this to make new plat books.

Title searchers, who depend on the plat books as a major source of information, unanimously hailed the move as a solution to their problem of working with badly damaged zoning maps. For instance, "The new plat books are a huge improvement over the old method, and make my job much easier," says Daniel J. Pendergast, a Jersey City Title Examiner. "Fibre books became creased, torn and dirty to the point where it was impossible to read them," Mr. Pendergast remarked. "When important information was worn away, examiners had to travel all over the county to complete a title search."

In fact, the improvement in plat books has been so well accepted that Hudson County officials are considering reproducing all permanent county records on the new material.

For additional information, write KEUFFEL & ESSER CO., DEPT. AC-2, HOBOKEN, N. J., or you may use the Post Card on the insert following Page 50. Circle No. 871.

Allis-Chalmers Introduces Two Heavy-Duty Diesels

Simplicity, ruggedness and ease of servicing are some of the features of the two new heavy-duty diesel engines introduced by the Engine-Material Handling Division of Allis-Chalmers Mfg. Co.

The 21000 is turbocharged and develops 340 hp at 2000 rpm; 16000 naturally aspirated engine develops 230 hp at 2000 rpm. Both are 6-cylinder, 4-cycle, in-line engines with 5¼-inch bore, 6½-inch stroke, 844 cubic inch displacement and 14.5 to 1 compression ratio. Basic weight of the engines is about 3,000 pounds, making a weight to horsepower ratio of approximately 9 to 1. All engine components are interchangeable, with the exception of the turbocharger and its related parts used on the 21000.

This new Allis-Chalmers turbocharged 21000 open-type power unit develops 340 hp at 2000 rpm.

A major feature of the engines is a new "two-stage controlled turbulence" construction that makes possible quick, easy starting, even in cold weather, fast acceleration, a clear exhaust throughout the speed and power range, and low consumption over a wide range of loads and speeds.

Both engines have full pressure lubrication. The injection pump is base-mounted with an integral variable-speed governor. A gear-type transfer pump is used, as is a two-stage fuel filter and full-flow lubricating oil filters.

The 21000 is the power source for the Allis-Chalmers HD-21 crawler tractor and the 16000 for the A-C HD-16 crawler tractor and for its TS-260 motor scraper. However, both engines are also available as 130 kw to 200 kw standby generator sets, and for off-highway vehicles, power units, and for other heavy-duty service requirements. For additional information, write ENGINE-MATERIAL HANDLING DIVISION, ALLIS-CHALMERS MANUFACTURING CO., MILWAUKEE, WIS., or you may use the Post Card on the insert following Page 50. Circle No. 875.

Belts Ice and Snow with Broom and Plow

Lull's Model S-40 snowplow - roll - over broom combination, designed for heavy-duty snow removal.

A reversible combination snowplow and roll-over broom, referred to as Model S-40, has been designed by LULL ENGINEERING CO., ST. PAUL, MINN., specifically for use by street and highway departments in ice and snow belts.

This unusual piece of snow removal equipment mounts ahead of 4-wheel-drive trucks. Its plow handles snow, and can be angled to 32° in either direction. (Blade angle can be changed during plowing operations.) The sweeper takes care of water, slush and sleet. When at rest, it sits behind the plow; for work, it is hydraulically "rolled up and over" the plow into working position. While operating at speeds from 8 to 15 miles per hour, the broom can be angled up to 32° in either direction. It covers a 10-foot swath and throws material 15 to 25 feet. The sweeper is powered by a 198-cubic-inch heavy-duty, 4-cylinder gasoline engine located directly behind the cab.

To complete the complement, a Lull Ice Roller-Crusher Ice Blade unit can be installed beneath the truck. The free-rolling wobble discs of the roller-crusher bear down on the ice, fracturing its frozen surface. The ice blade, which is mounted directly behind the roller-crusher, can be

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GENTLEMEN: I'd like to hear more about the fabulous NEW Lathem Time Recorder.

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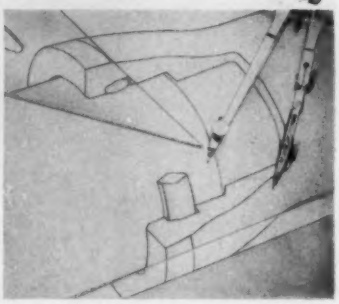


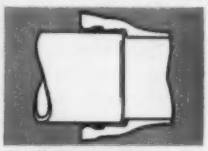
The **ALTITE JOINT** has been subjected to a series of rigid tests much more severe than are encountered under the most extreme installation and service conditions in the field. Even under extreme conditions, this joint is so simple to install — you could hardly go wrong if you tried.

Four Operations As Simple As Falling Off a Log—

Insert Rubber gasket in, bell end of pipe — you can't put it in wrong — A child can do it.

Wipe on a small amount of special lubricant—This reduces friction.

Insert plain beveled end of pipe — there are no grooves, ridges or tips on gasket to interfere with smooth insertion.



Small amount of pressure required to force plain end to bottom of socket— Your simple, time saving joint is completed.

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angled up to 20° in either direction.

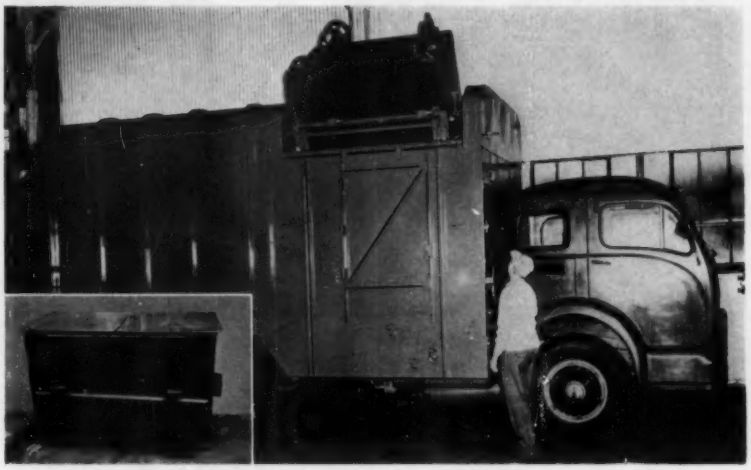
Electric solenoid controls actuate all movements of the hydraulically controlled equipment. Units are finger-tip controlled from the cab. For further information, write LULL ENGINEERING CO., 3045 HIGHWAY 13, ST. PAUL, MINN., or you may use the Post Card on the insert following Page 50. Circle No. 857.

Vulcan Continues to Expand

Charles W. Ireland, president, VULCAN MATERIALS CO., BIRMINGHAM 2, ALA., has announced that Vulcan contemplates spending $10 million in 1959 for continued expansion and improvement of existing company facilities. This figure does not include expenditures for potential acquisitions, Mr. Ireland said.

The company approved expenditures of $10 million in 1958, and some of these funds have been carried over into 1959. The balance of the 1958 appropriation will be added to the $10 million to be spent this year.

"This year for example," Mr. Ireland said, "Vulcan will spend more than $750,000 for expansion and improvement of its Concrete Pipe and Slag operations."



With "Trashtainer", refuse collection is both sanitary and efficient.

Integrated Refuse Pick-Up System

A new integrated system of mechanical pick-up of trash and refuse reduces handling and stop time and assures sanitary collection. It utilizes an hydraulically operated compacting unit mounted on a truck chassis, an automatic lift and dump mechanism and a movable metal container.

This container is called "Trashtainer." It is leakproof, built of corrosion-resistant steel construction, and is mounted on sturdy ballbearing-equipped wheels;

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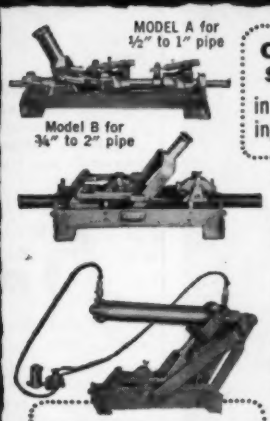
Only the
Trojan Pipe Puller & Pusher
gives you continuous action . . .
No Resetting of Grip!



CUTS COSTS! SAVES TIME-
in installing or renewing pipe under pavement

The Trojan combines pushing and pulling operations in one machine—eliminates all time-killing resetting of grip—keeps pipe continuously moving. Does the job at lower cost—in far less time.

Model A weighs 65 lbs.—requires only 5' trench. One man can easily install the average service. 15 tons of pushing pressure possible.

Model B (either hand or air powered) needs only 5½' trench—has 3 speeds for different soils—is reversible in 30 seconds. Push pipe comes in 30" lengths, assures straight travel.

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Does all the work for you. Handles ¾" to 2" pipe.

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Now you can operate your tractor efficiently regardless of unfavorable ground conditions!

With a Sherman-Napco 4-Wheel Drive, you "get up and go" because you have more positive traction at all four wheels . . . you do many heavy jobs that you would expect only a larger tractor could handle . . . and work is performed quicker.

Because traction is positive, you utilize the full power built into your engine. And tractor life is increased because there is less wear and tear, wheel slippage, clutch slippage and strain.

The Sherman-Napco is engineered specifically for the Ford 600 and 800 series tractors. It is an inexpensive unit that can be installed in a few hours and soon pays for itself.

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Mark road hazards for eye-catching reflectivity and brilliance with Type H Safety Spheres at just pennies per square foot. Easy to apply with ordinary traffic paint. Fully effective — long lasting — economical. Write for details.

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- Dig ANY Soil!
- Positive Feed!
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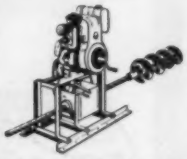
Ideal for poles, posts, pier-holes.

New INDUSTRIAL DIGGER cuts up to 6½ feet through clay, shale, gumbo, tree roots and frozen ground.



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its hinged, spring-loaded top cover assures freedom from rodents and vermin. A patented latch permits quick and easy attachment to the specially designed lift arms of the truck body. Push-button controls permit one-man operation of the entire system.

Trashtainer units are available in one- and two-cubic yard capacities. The capacity of the special truck dump body, when fully compacted, averages more than 60 yards. Both are manufactured by EQUIPMENT MFG. INC., 21550 HOOVER RD., DETROIT, MICH. For additional information on this refuse collection system which offers real advantages to both residential and commercial collection, write the company, or you may use the Post Card on the insert following Page 50. Circle No. 880.

Plastic Trafficones

The originator of rubber Trafficones, Interstate Rubber Products Corp., announces the development of a complete line of Trafficones, adapters, and accessories made of polyvinyl chloride.

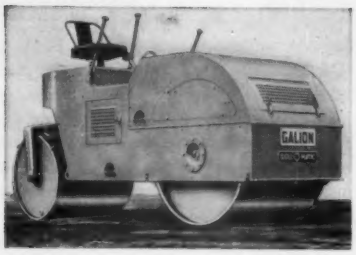
These plastic cones are heavily constructed and properly engineered to resist greater wind velocities. The tough, flexible plastic will withstand rough wear and abuse required by every-day use.

Pigment is impregnated throughout the compound producing brilliant red and yellow colors for better visibility, and longer brightness. Painting is not required.

For additional information, write INTERSTATE RUBBER PRODUCTS CORP., 908 AVILA ST., LOS ANGELES 12, CALIF., or you may use the Post Card on the insert following Page 50. Circle No. 858.

Interstate Rubber's new plastic traffic cones are available in three standard sizes—12, 18 and 28 inches.

Galion 3-5 Tandem Roller Has Roll-O-Matic Drive



The new 3-5 ton Galion tandem roller has the features, design and appearance of the larger size Galion tandem rollers.

The smallest roller in the Galion line—the 3-5-ton variable weight tandem—has been completely redesigned and is now equipped with Roll-O-Matic drive, a combination of torque converter, automatic fluid transmission, and tail shaft governor, which is said to greatly increase roller performance and ease of handling.

According to the manufacturer, more than twice the needed power is always available. When the governor lever is moved to the selected rolling speed, engine power is applied and regulated automatically. Shock loads are cushioned, and there is no engine stalling or overloading. Rolling efficiency is increased so as to permit up to 10% more surface to be rolled each day. Rolling speeds from 0.5 to 5.6 mph are provided by a two-range transmission.

Operating and maintenance costs are said to be less because of a 25% reduction in fuel consumption, a 35% increase in engine life, and a 40-50% increase in the life of forward-reverse clutches.

The new 3-5 tandem roller has all the features, appearance and design as used on the larger size Galion tandems. Its features include dual operating controls, a water-cooled gasoline engine delivering 32 hp at 2,400 rpm, and a movable operator's seat that permits efficient operation of the roller from either side of the platform.

For complete information, write THE GALION IRON WORKS & MFG. COMPANY, GALION, OHIO, or you may use the Post Card on the insert following Page 50. Circle No. 870.

Bay City Shovels Names New Vice President

G. L. Sittser has been elected by the Board of Directors of Bay City Shovels, Inc., as executive vice-president of that firm. Mr. Sittser brings to his new post a weath of experience in both the automotive and industrial fields, having been associated in an executive capacity with nationally-known manufacturers.

Donald E. Hawkins, president of Bay City Shovels, Inc., emphasized that there would be no change in present management personnel. Rather, he said, Mr. Sittser's appointment to the post of executive vice president was for the purpose of strengthening the organization for the expected growth of the company and its products which is already evidenced by a substantial increase in the backlog of orders.

Bay City Shovels, Inc., Bay City, Mich., has been long established as a leading manufacturer of excavating and material handling equipment.

Turns Warning Lights On and Off

The Neo-Transistor Model TR-O, with "Magic Switch" is visible for one mile, has a "snap-out" bulb socket for easy replacement of bulbs, is weather-proof, and operates for 5 months on two lantern batteries.

One of the more advanced devices to appear in the field of warning lights is a "Magic Switch" which automatically turns "off' warning lights during the day and "on" at night. Formerly, the labor cost of turning these lights "on" and "off' each day was greater than the battery savings. Consequently, it was customary to leave them running day and night. This wasted batteries during daylight hours.

The "Magic Switch' is now available on all Neo-Transister warning lights and, according to the manufacturer, will cut battery cost in half. It is a fixed part of the light with no loose wires. For additional information, write NEO-FLASHER MFG. CO., 3210 VALHALLA DRIVE, BURBANK, CALIF., or you may use the Post Card on the insert following Page 50. Circle No. 886.

Improved Sand Spreader

Fox River Tractor's dual-purpose sand spreader, for highway seal-coating in summer and de-icing in winter, incorporates five improvements.

Though still providing manual feed and throttle control, it now offers an electrical control panel that permits the driver to regulate material with split-second efficiency from the dashboard without exposure to weather.

A protective cover grid, made up of ⅜-inch rods spaced 3 inches apart and centered in ¼ x 2-inch crossbars, replaces a mesh-type screen. The grid is made in hinged sections to facilitate handling. The Fox auger feeder, which provides an even, steady flow of material to the spinner, can handle any sanding material that passes through the grid.

An easy-working lever adjusts the height of the spinner to regulate width of spread in four steps from 8 feet to 40 feet with most materials.

The spinner shroud is now detachable for easy storage, can be attached or detached from the body of the spreader in a few minutes.

Available as an optional feature is a V-shaped baffle plate that can be mounted over the auger to ease the load of heavy materials (such as chips). By making two simple sprocket changes and installing this baffle plate, the sander can be quickly converted to a seal-coater, giving the machine year-round utility.

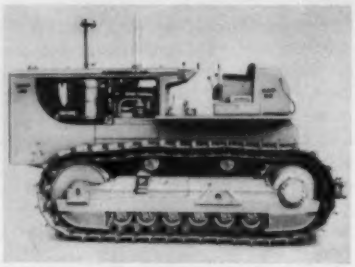
The Fox mountable spreader is available

The new Fox dual-purpose spreader deices in winter as effectively as it seal-coats during the summer months.

in four sizes, with capacities from 5 to 8 cubic yards heaped. It is designed for mounting on any standard dump truck in 15 minutes and operates effectively at truck speeds from 5 to 40 mph. An 18-hp Wisconsin air-cooled engine powers the entire spreader unit.

For additional information, write Fox River Tractor Co., Road Machinery Division, 1020 N. Rankin St., Appleton, Wis., or you may use the Post Card on the insert following Page 50. Circle No. 890.

Caterpillar Introduces Two New D8 Tractors



A 3½-year development program at Caterpillar Tractor Co., Peoria, Ill., has culminated in that company's introduction of two new prime movers—the Series H D8 direct drive and torque converter tractors.

Weight, horsepower and productive ability of these units exceed those of their predecessors, and a ground clearance of nearly 20 inches represents an increase of more than 50% over the previous D8s.

The undercarriage feature of these new tractors most meaningful to the machine owner is the lifetime lubricated track and carrier rollers and idlers, being introduced for the first time on the Series H D8. After lubrication at the factory, these units are said to require no further attention during their service life until rebuilding. This outstanding capability is accomplished by using completely new face-type metal floating-ring seals and rubber rings. The seals, which feature metal-to-metal sealing surfaces, have fewer parts, permit more play without losing effectiveness, and are more corrosion-resistant than the previously used bellows-type seals.

Another new, important feature of the Series H D8s is the pressure lubrication of the entire power train with completely filtered oil. Engine-type oil (SAE 30) is used to lubricate and cool the transmission, bevel gears and steering clutches. The compartments housing these power train components are interconnected, forming a common oil sump, which is serviced by a two section pump. Oil from the pump's front section provides boosting of the steering brakes. Oil pumped by the rear section is full-flow filtered, after which a portion of it is used to actuate the steering clutch control, and lubricate the control, bevel gear pinion and shaft bearings. The filtered oil flows through a water-cooled heat exchanger to a transmission manifold which controls pressure lubrication of transmission, bearings, gears and shafts. Steering clutches and brakes are cooled

A double reduction final drive permits higher engine horsepower to be transmitted through the power train of the new Cat Series H D8 tractors with less torque stress on power train components.

STUDY UNITED FEATURES FOR "GRADE A" INVESTMENT!

Your budget requires long-term value for every dollar allocated — products must stand up for years. The next time you consider waste receptacles, remember this: United units withstood 100° sizzlers, snowstorms, scuffing and use by a multi-million New York City populace for over 20 years — and simply needed one coat of paint to look brand new! Let sturdy United units give sanitation help to your schools, colleges, institutions, and municipality. Catalog on request.

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"Custom Engineered Waste Receptacles"

and lubricated by operating in the reservoir of oil in the sump.

Prime benefits of a new-dry-type air cleaner, which is a feature of the engine powering the D8 Series H tractor, are improved filtration of engine intake air, and reduced maintenance costs due to the elimination of oil in the cleaner and a reduction in servicing time of at least 75%.

The new transmission on the direct drive model is directly reversing in all six speeds. Top reverse speed is nearly double that available on previous direct drive models. Also, the new high forward speed has been increased to 6.3 mph from 5.2 mph. The new transmission has four shafts instead of three, and retains the easy shifting characteristics of constant mesh gears.

One of the design features of the H D8s that facilitate operation comfort and provide increased and easier maneuverability, is a foot decelerator, which is standard on the torque converted model and optional on the direct drive model.

For literature giving complete information on these bigger, more powerful, more profitably operating Series H D8 tractors, write CATERPILLAR TRACTOR CO., PEORIA, ILL., or use the Post Card on the insert following Page 50. Circle No. 885.

C. W. Brydon, Controller of Neptune Meter

Charles W. Brydon has been appointed Controller of Neptune Meter Co., New York, N. Y., according to an announcement from William H. Cochrane, president. He will be responsible for all accounting policies and procedures of the company and its subsidiaries.

Neptune, the world's largest manufacturer of water meters, also makes an extensive line of industrial, petroleum, and LP-gas meters. The corporation's subsidiaries include: Superior Meter Company, gas meters; Revere Corporation of America, aircraft instruments, high temperature wire, and electric load cells; Electronic Signal Co., highway toll collection equipment; and Hot Spot Detector, Inc., grain temperature detecting systems.

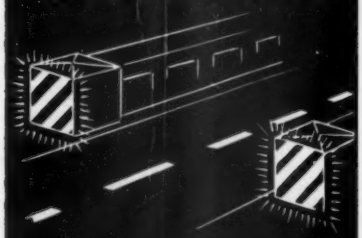
"Business As Usual" In O'Brien's New, Enlarged Plant

Last May O'BRIEN MANUFACTURING CORP. observed the first anniversary of its move to a new plant with "business as usual." Although the new building, lo-

Solve Street and Highway Reflectorizing Problems with

FLEX-O-LITE

Type H Safety Spheres



Low first cost—low upkeep—plus fully effective night and day protection is assured with Type H Safety Spheres. Terrific bead brilliance. Long lasting! Apply with ordinary traffic paint at pennies per square foot. Write for details.

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national's DF-12 stops foam in sewage aerators

National's DF-12 is a liquid chemical formulated for the control of foam in sewage aerator tanks. DF-12 assures a good knockdown of foam, economical application and simple methods of use. Completely safe to use anywhere in the sewage plant, the efficiency of DF-12 is not affected by altitude or temperature. Packaged in convenient 55-gallon steel containers, National's DF-12 will control the foam problem in your municipal or industrial sewage plant.

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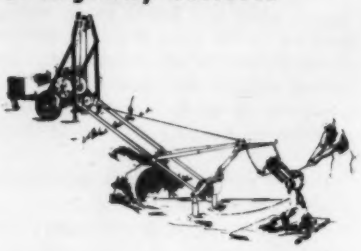
cated at 5632 NORTHWEST HIGHWAY, DEPT. AC-259, CHICAGO 46, ILL., gives the corporation three times as much space as it had in its factory building a few feet north of this new plant, conditions are proportionately as crowded as formerly. This is the third time within six years that O'Brien has had to increase its manufacturing space.

Quality, durability and practical know-how experience in O'Brien's products prevails from the big, powerhouse Sewerking "800" through small tools such as the handy Electric Snake. The firm's equipment for sewer maintenance storm and sanitary main lines and branch lines is used in cities of all sizes, in industries and institutions throughout the world.

H. T. (Howard) O'Brien, president and general manager, is not content to rest on laurels. Under his direction the O'Brien Manufacturing Corp. is endlessly searching and experimenting in development engineering for better materials, better methods of craftsmanship, and product refinement in general.

Facilitates Cleaning of Highway Culverts



Flexible Inc., a leading manufacturer of sewer cleaning equipment, has applied for a patent on an extension boom to be mounted on its Bucket machines. This new device, which makes it easy to clean culverts from the shoulder of the road, solves a problem for highway maintenance departments.

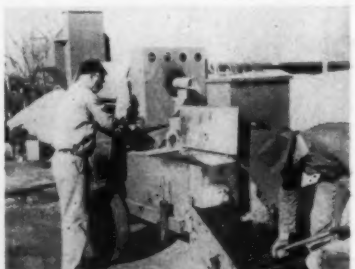
The boom, it is said, can be used successfully on culverts from 6 inches to 144 inches in diameter. Its telescopic arms permit cleaning at depths of from 10 feet to 20 feet below the surface of the road.

For complete information, write FLEXIBLE INC., 3786 DURANGO AVE., LOS ANGELES 34, CALIF., or you may use the Post Card on the insert following Page 50. Circle No. 867.

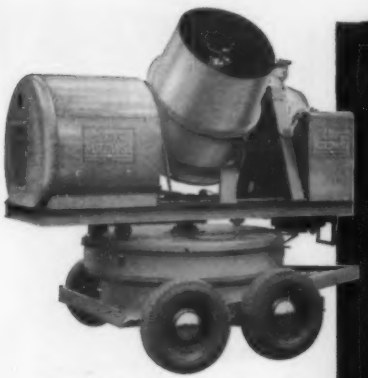
Mobile Asphalt Machine Has Big Plant Features

Unlike most low-cost asphalt plants which dry aggregates in the pugmill, Wylie's Model PM-310 Patch-Mix dries aggregate in a rotary dryer while its pugmill mixes batches of aggregate with asphalt—a system used in large plants.

The 310 has a built-in heated asphalt tank, as well as a volumetric asphalt measuring system that can charge a measured amount of asphalt into the pugmill each time aggregate is batched. The machine accommodates all types of paving aggregates, ¾ of an inch minus. Its asphalt system is designed for use with all asphalts, to produce all types of hot mix, as well as cold mixes. The machine is also



On the job with the Model PM-310 Patch Mix, a small, low-cost asphalt plant designed to produce both hot and cold mix.



MODEL 300 ROTOMIST
today's biggest capacity mist sprayer — 300 gal. tank, 60,000 cu. ft. of air per minute.

NOW... 4 John BEAN® ROTOMIST® SPRAYERS

For versatile, community protection... a model to fit every requirement — every budget

Now, four famous John Bean Rotomists give you the widest selection of mist sprayers available. For shade tree spraying and fly and mosquito control, every model offers unmatched performance, plus big savings in time, labor and materials. All Rotomists feature exclusive, straight-through air delivery for maximum drive and volume, thorough coverage and faster rate-of-work. Ask your John Bean Dealer for details on the model that meets your needs and budget.

MODEL 100 ROTOMIST
100 gal. tank, 28,000 cu. ft. of air per minute.

MODEL 75 ROTOMIST
75 gal. tank, 19,000 cu. ft. of air per minute

MODEL 50 ROTOMIST
can be used with most any high pressure sprayer—12,000 cu. ft. of air per minute.

Ask for details on 60 GPM Hydraulic Sprayer

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ATTACH COUPON TO CARD OR LETTERHEAD — GIVE NAME AND ADDRESS

suitable for remixing stockpile material.

Thermometers and controls are grouped at the machine operator's position. This minimizes traffic hazards and eases the operator's task. The normal crew at the machine would consist of a machine operator and an aggregate feed man.

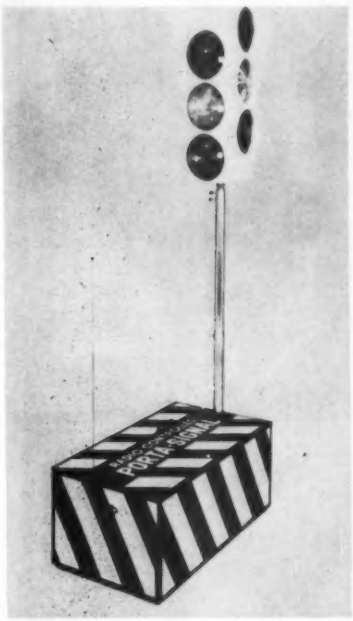
For complete information on this small, low-cost asphalt machine, write WYLIE MANUFACTURING CO., INC., P. O. BOX 7086, 640 MERIDIAN, OKLAHOMA CITY 12, OKLA., or you may use the Post Card on the insert following Page 50. Circle No. 859.

Radio-Controlled Portable Traffic Signal

A portable, radio-controlled traffic signal offers remote radio control and portability, as well as all the features of a regular traffic light. The signal lights can be changed automatically at pre-timed sequences, operated manually by pushbutton, or set for caution flashing. Radio control at distances of several hundred feet is provided by a 7-ounce pocket-sized transmitter.

The battery-powered signal is self-contained in a compact aluminum case which can be carried by hand and acts as a base during operation. The signal head extends to a height of ten feet and is equipped with standard red, amber and green spun-proof lenses.

"Porta-Signal" is produced by the PORTA-SIGNAL DIVISION OF DRYOMATIC CORP., 806 N. FAIRFAX ST., ALEXANDRIA, VA.,



"Porta-Signal" meets the needs of both periodic and emergency traffic control.

your
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take a trimming!
Simplicity
WONDER-BOY
575
Only riding mower with patented*
"Free Floating" action!
New 32" rotary mower . . .
33% more cutting capacity!
New 5¾ horsepower engine . . .
44% more hp!
2 speeds forward and reverse!
Turns within 4½ foot radius.
* U. S. Pat. No. 2801510
Slickest rig ever to tackle a "growing" problem! Simplicity's new WONDER-BOY trims lawns velvet-smooth at a 1⅜ - acre-per-hour clip, offers unmatched maneuverability for trimming close to fences, shrubs, buildings. New 5¾ hp Briggs & Stratton engine provides 44% more power to handle big lawn jobs faster, easier, more efficiently. See WONDER-BOY today!
See Your Simplicity Dealer or Write
SIMPLICITY MANUFACTURING CO.
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BUILDING NEW SEWAGE LIFT STATIONS?
Be sure of Continuous operation during Power Failure!
WITH Katolight EMERGENCY
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Warning!
Highway accidents are taking a ghastly toll of maimed and dead. Reflective glass bead installations of Flex-O-Lite Type H Safety Spheres clearly define traffic hazards—work effectively day and night in the cause of safety. Flex-O-Lite Type H Safety Spheres get their warnings across quickly with powerful impact. For low first cost—low upkeep—fully effective protection—specify Type H Safety Spheres by Flex-O-Lite. Write for details.
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Western Parking Gate
in combination with hourly rated
"Parkontrol" Time-Dater-Imprinter Equipment.

Over 700 Western Parking Gates in more than 100 cities have proved that off-street parking can be handled automatically at a substantial profit. Positive control—Western Parking Gates are electrically operated to give complete flexibility, dependability and ease of operation in any city parking facility.

Key, electro-card, coin and token-operated gates, separately or in combination, provide the answer to municipal lots operated on a flat fee arrangement.

"Parkontrol" Time-Dater-Imprinter Equipment available for operations involving hourly rate and validation parking. Low labor costs, low initial equipment cost and simple installation make them a wise investment for any city.

EXCLUSIVE FEATURES—Western, builder of more than 12,000 railroad and highway crossing gates, has engineered the "Lot Full" sign, electric opening and closing treadles, double key controls for night and day parking, electro-cards with period changes, push-button remote controls and automatic counters.

WRITE TODAY for information on various parking lot control plans available for your application.

8376

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Electric Parking Gate Division

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CANADA: Cameron, Grant Inc., 465 St. John Street, Montreal 1, Quebec

NO THREADING

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UP TO 30% SAVING

on safety railings built with

NU-RAIL® FITTINGS

There's one easy way to build pipe railings—build them with Nu-Rail Slip-On Structural Fittings. Simply slip the fittings on the pipe, tighten the set-screws with a hex wrench. That's all there is to it, and you've saved time and construction costs, too.

With five basic fittings you can make up combinations for any kind of safety rails or guards. They're made of high-strength aluminum—you can use them outdoors or indoors. Pipe threading and welding are eliminated, pipe cutting is reduced to a minimum.

Leading distributors handle these aluminum fittings, both NU-RAIL and the lighter duty SPEED-RAIL Fittings. Write for descriptive Bulletin 17 AM.

Build them with
NU-RAIL OR SPEED-RAIL FITTINGS

- STADIUM ENCLOSURES
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- AMUSEMENT PARK BARRIERS
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- SAFETY GUARDS

THE HOLLAENDER MANUFACTURING CO., 3841 Spring Grove Ave., Cincinnati 23, Ohio

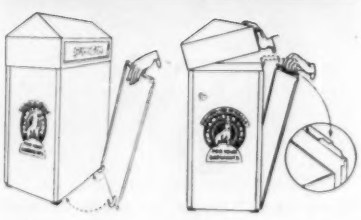
Purchasing

nationally-known manufacturer of dehumidifiers and industrial moisture control systems. For additional information, you may write the company, or use the Post Card on the insert following Page 50. Circle No. 862.

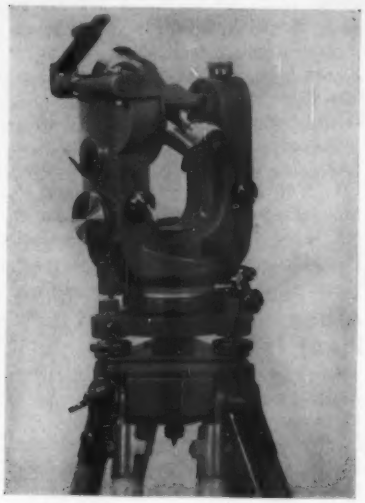
Waste Receptacles with Ad Panels

Weatherproof advertising messages on Superior Weathermaster waste receptacles are proof against vandalism or unauthorized sign removal. The steel panels hook onto the base band and the upper band. The hinged top is then locked over the top of the advertising panel, holding it firmly in place. Weathermasters feature an exclusive rainproof top with two full-width, independently operating flaps for fast, safe waste disposal.

C. P. Carlson, Superior's sales manager, suggested that the new advertising panels can cut municipal clean-up costs two ways: first, by gaining public cooperation to reduce litter and dispose of waste properly; second, by renting advertising space to provide an additional source of revenue for sanitation departments. Further information can be obtained by writing to the manufacturer, SUPERIOR METALWARE DIVISION, JOHN WOOD CO., 509 FRONT AVE., ST. PAUL, MINN., or you may use the Post Card on the insert following Page 50. Circle No. 861.



Optical Micrometer Theodolite for City Survey Crews



A theodolite made by England's oldest maker of surveying instruments, Cooke, Troughton & Simms Ltd., has been introduced for the American municipal engineer and surveyor by Precision Instruments Inc.

Known as Model V308, the English optical micrometer theodolite reads directly to 20 seconds of arc and by estimation to 5 seconds. Its outstanding features include brilliance of field of the circle-reading microscope, high degree of magnification which can be applied to the graduation system, and extremely convenient reading position. The telescope of the V308 is of the internal-focusing type with spiral focusing eyepiece. The instrument weighs 9 pounds.

The theodolite, complete with spirit levels, optical plummet, centering device and either telescopic or nontelescopic tripod, is packed in a special case of lightweight construction.

For further information and descriptive *Bulletin* 48431, write PRECISION INSTRUMENTS, INC., 1900 FIFTH AVE., TROY, N. Y., or you may use the Post Card on the insert following Page 50. Circle No. 881.

HARCO Moves to New Location

The leading company in the field of cathodic protection, the Harco Corp.—now occupies new headquarters at 4600 E. 71st St., Cleveland 25, Ohio. The combined executive offices and manufacturing facilities are more than five times those formerly occupied by the company, and includes both shipping docks and railroad siding.

The company supplies job-engineered systems, materials and contract installations that combat the electrolytic corrosion of buried or submerged metallic structures and pipelines by reversing the electro-chemical force that normally destroys ferrous metals. These systems are widely used in municipal and private water works, petroleum, gas transmission, brewing, chemical and automotive industries, and in all types of marine installations.

Hydraulic Hole Digger

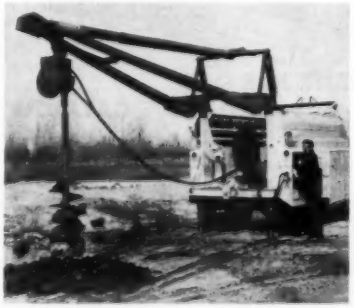
The Series DF-1 digs straight, cleans holes up to 10 feet in depth and 20 inches in diameter, in practically any type of soil. It is a new addition to the "Earth-Master" hydraulic hole diggers manufactured by the Powers-American Division of McCabe-Powers Body Co.

The standard auger furnished with the digger is equipped with a Pengo head having replaceable high-alloy steel points. Augers are available in sizes of 9 inches to 20 inches in diameter.

Power is derived from a hydraulic pump driven by a power take-off installed on the truck transmission. Full-torque drive, desirable if the digger is to be used with the largest auger, is optional equipment. A reversible hydraulic motor which drives the digger through a chain and sprocket assembly accomplishes rotation. Oversize gears and tapered roller bearings are used throughout.

The DF-1 digger is designed for use with a "live-boom" derrick, such as the Series PM-1 "Pole-Master" hydraulic derrick. Natural feed of the auger, plus down pressure which can be applied with the derrick, facilitates digging in extremely hard soil.

The DF-1 digs close to fences, poles, buildings and in places often inaccessible



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One man can measure as fast as he normally walks when using the Rolatape 400. Total is automatically recorded in full view of the operator.

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Rolatape's accuracy and speed are ideal for important measurements connected with estimating, daily progress reports and final inspection.

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Street marking and sign placement require accurate measurements—the degree of accuracy you get with Rolatape's precision 400 wheel.

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Everywhere it's EVINRUDE POWER

Tri-County Safety Patrol, Sheriff's Department, Wood County, Wisconsin.

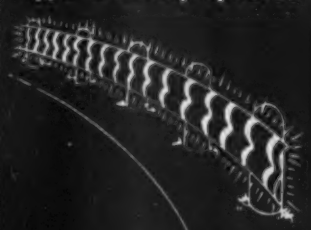
for every job on the waterfront

For nearly five decades Evinrude outboard motors have been top choice for powering every type of small craft in municipal service . . . waterfront patrol—rescue squads—emergency fire fighting—reservoir chlorination—weed eradication—inspection and ferry service. Complete range of models. 3 to 50 horsepower. See your local Evinrude dealer—his name is listed under "Outboard Motors" in the yellow pages. Evinrude Motors, 4147 N. 27th St., Milwaukee 16, Wisconsin. *A Division of Outboard Marine Corporation. In Canada: Mfd. by Evinrude Motors, Peterborough.*

Now! MAXIMUM PROTECTION at Lowest Cost . . . with

FLEX-O-LITE

Type H Safety Spheres



Low first cost (just pennies per square foot) . . . low upkeep . . . fully effective night and day protection is yours with Type H Safety Spheres. Applied to ordinary traffic paint these reflective glass beads get their warnings across quickly and with powerful impact. Write for details. Address

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to fixed-position diggers. It stows in a special cradle on the derrick and can be easily transferred from one vehicle to another or removed when full capacity of the derrick is required for hoisting operations. The digger may be used with a truck-mounted crane.

For descriptive literature and price information, write McCabe-Powers Body Co., 5900 N. Broadway, St. Louis 15, Mo., or you may use the Post Card on the insert following Page 50. Circle No. 865.

Alabama Pipe to Build Plant in Kokomo, Ind.

Construction of a plant to manufacture APCO sand spun soil pipe in sizes up to 15 inches is planned by Alabama Pipe Company. The new plant, to be located in Kokomo, Ind., will employ the Herman Pneumatic Process, which produces seamless pipe that is smooth inside and outside and free from pits or sand holes. Operation is scheduled to begin early in 1960.

Alabama Pipe Co., whose home operations are in Anniston and Gadsden, Ala., recently completed and placed in operation a multimillion dollar plant in South Gate, Calif. With the addition of the Kokomo plant, the company will be better able to service its customers throughout the U. S. with cast iron pipe and fittings.

Improved Self-Propelled Pneumatic Tire Roller

The Bros SP-54B is a medium-weight self-propelled pneumatic tire roller whose ballast range can be varied to produce from 3 to 10 tons compaction load. It now boasts a lower center of gravity to increase its stability for shoulder work and steep grades; machine height to top of steering wheel is only 91 inches.

Power hydraulic steering and "velvet drive" hydraulic reversing clutch and transmission provide additional ease of operation and handling for shuttle or back-and-forth rolling. In combination with torque converter drive, these features offer

Bros-designed plastic scrapers, properly located and loaded on each wheel, control material pick-up on tires, should it occur on asphalt or seal-coating compaction.

smoother starting and transmission of power through an infinite speed range, from 0 to 20 mph.

There are individual brakes on all four drive wheels, and a 95% increase in braking capacity is made possible by increased area and number of brake drums. The parking brake is directly connected to the drive shaft independent of the main service brakes.

A new type of oscillation through special sculptured sprockets and gears provides full oscillation on all wheel pairs. Oversize wheel bearings allow 60% greater thrust than the maximum 10-ton ballast load.

For other improvements, complete details and specifications, request *Brochure* No. RE-390 from ROAD MACHINERY DIVISION, BROS INCORPORATED, 1057 TENTH AVE. S.E., MINNEAPOLIS 14, MINN., or you may use the Post Card on the insert following Page 50. Circle No. 864.

Concrete Saws Aid Modernization Program

The City of Chicago, which is in the midst of a multimillion dollar modernization and renovation program, is making extensive use of Clipper concrete saws and blades for sawing before breaking out concrete and asphalt streets and sidewalks.

Clipper's Model C-300 saws a sidewalk in front of Chicago's St. George School. This project involved a 4-block area in a residential district where additional light poles were being installed.

The city's Bureau of Electricity reports considerable savings in time, money and replacement material achieved through use of these units. Sawing eliminates the possibility of damage to existing pavement, results in less debris to pile up and haul away, reduces the need for further maintenance because of chipping and spalling, and hastens the completion of repair work

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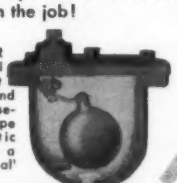
...control air safely and efficiently

These basic advantages are yours when you use Crispin Air Valves . . . simplified construction, easy accessibility, maximum durability, minimum maintenance and efficient operation. You're *safe* with Crispin Air Valves on the job!

Crispin COMBINATION AIR VALVES . . . reduce installation and operating costs where a combination of an Air and Vacuum Valve and a Pressure Air Valve are required.

Crispin NEGATIVE PRESSURE AIR VALVES . . . release air semi-automatically from pipeline siphons to end the danger of throttled pipelines.

Crispin MIDGET AIR VALVES . . . ideal for venting hot water systems and are particularly useful in panel type units — synthetic plunger makes a perfect seal at all times.



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FOR OVER 45 YEARS

Write, wire or phone for complete information on dependable Crispin Air Valves that keep your pipelines open for safe, economical operation

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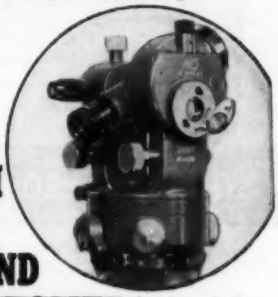

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- Exceptional portability and precision.
- Readings automatically . . . AT A GLANCE.
- Direct reading to 10". Estimation to 1". Average working accuracy —3-4 secs.
- Can be used with electric lighting unit for night work.

KERN CENTERING TRIPOD

Unique—a Kern first! Centers instruments in seconds with remarkable accuracy. Assures exceptional stability with ball-and-socket head, supporting instrument coupling.

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The FINEST in SURVEYING EQUIPMENT

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at busy intersections or heavily traveled sidewalk crossings.

Complete information on the use of Clipper concrete saws for controling pavement breakage may be found in *Booklet* 4051, "Sawed Excavations". For your copy, write CLIPPER MFG. CO., SUITE 102, 2800 WARWICK, KANSAS CITY, MO., or you may use the Post Card on the insert following Page 54. Circle No. 896.

Ball Bearing Lubrication

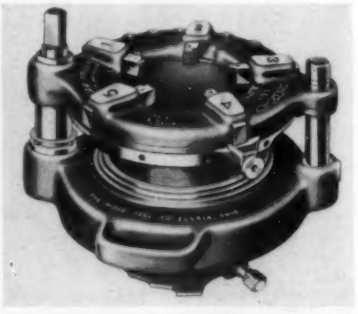
Modern ball and roller bearings are part of a team: the other part is the lubricant. The bearings could not do their jobs if it were not for the highly developed greases and oils that lubricate and protect them in service.

An ideal antifriction bearing would be one in which only pure rolling motion was encountered. However, this does not work in practice. Lubrication is needed to minimize wear and friction. The great majority of rolling-element bearings are now lubricated with grease. Simpler housing designs are possible, and piping may be greatly reduced when grease is the lubricant. Advances in ball and roller bearing lubrication during recent years is discussed in *Lubrication* for August 1958, copy available free from THE TEXAS CO., 135 E. 42ND ST., NEW YORK 17, N. Y., or you may use the Post Card following Page 68. Circle No. 895.

Geared Pipe Threader Can Be Power- or Hand-Operated

A new addition to the RIGID line of pipe tools — the No. 161 Geared Pipe Threader—is announced by The Ridge Tool Company.

This new threader is jamproof, for safe threading with power drive and threads 4, 4½, 5 and 6-inch pipe or conduit with just one set of dies that are cam-activated. Size setting is said to be fast, easy and positive. Two spring knobs lock dies at



The No. 161 geared pipe threader threads pipe or conduit from 4 inches through 6 inches.

clearly marked thread size. Adjustment for straight or tapered threads and for over or undersize threads is possible.

No bushings are necessary. A RIGID plate type workholder sets to size before the threader is placed on pipe. A single screw is tightened to secure workholder to pipe.

Designed for power drive or hand operation, the No. 161 is regularly equipped with ratchet handle. Other features are closed chaser slots to keep dirt out, milled in thread wipers that prevent chip damage and large loop handles for easy, nonslip handling. For further information, write THE RIDGE TOOL CO., ELYRIA, OHIO, or you may use the Post Card on the insert following Page 50. Circle No. 894.

Pitman Adds New Model Hydra-Lift

The new Model 50 Hydra-Lift, now being manufactured by Pitman Mfg. Co., lifts 5,000 pounds; requires only 22 inches behind a truck cab; is completely hydraulic; it can rotate its boom a full 360°.

The dotted lines in the accompanying photograph show how the boom can be carried either over the cab of the truck or the bed. Over the cab, the boom places no restriction on the size of load that can be carried.

The new crane, which has controls on both sides, is available in three models: one has a fixed length boom, 12 feet long; the second, a boom that telescopes manually from 12 to 16 to 20 feet; the third, one that telescopes hydraulically 12 to 20 feet. All boom and loadline actions, or

HOTEL TULLER

... featuring convenience, comfort, quality! A cosmopolitan atmosphere in home-like setting. In the center of all downtown activities. Newly decorated. Ultra modern, comfortable guest rooms . . . excellent food at moderate prices in our modern coffee shop and cafeteria.

Radio and Television in room. Air Conditioned rooms in season.

800 ROOMS WITH BATH from $4

GARAGE available at nominal charge. Free overnight parking for registered guests in PARKING LOT.

FAMILY RATES
No Charge for Children 12 and Under —

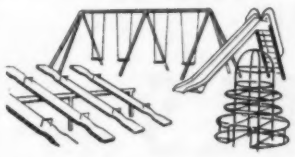
Harry E. Paulsen, General Manager
FACING GRAND CIRCUS PARK

DETROIT

Game-time
UNCONDITIONALLY WARRANTED

PARK AND PLAYGROUND EQUIPMENT

Easier to Install—Stronger—Safer
Now in Exciting Duo-Color



Game-time playground devices are now available in eye-catching color if desired. Alternate blocks of red and white or blue and white make every play area more attractive.

All equipment has been designed in cooperation with recognized authorities on play guidance—your assurance that you get the finest and the safest when you specify GAME-TIME.

FREE PLANNING & LAYOUT SERVICE

Write for catalog.

MARK OF QUALITY
Game-time, inc.
206 Jonesville Road
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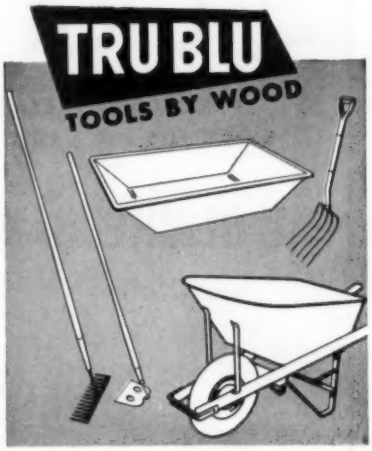
Wholly owned subsidiary of Simpson Mfg. Co.

Special analysis Moly alloy steel, mill rolled to uniform gauge. Heat treated to 460-512 Brinnell hardness and tensile strength of 200,000-275,000 p.s.i. Selected XX White Ash handles. Patented steel I-beam reinforcement stops handle breakage. Fully finished. Uniform quality 12 to the dozen. Workers like them for perfect hang, balance and finish . . . and they last 2 to 3 times as long as others.

See Wood for non-sparking, acid resistant ALUMINUM shovels, too!

THE WOOD SHOVEL & TOOL CO.
Piqua, Ohio



GOLDAK TRANSISTORIZED LOCATORS

Pipe Locator-Leak Detector

"Dualtronic"

Model LC-5T

The new "Dualtronic" combines the finest transistorized Pipe Locator ever developed with a high-gain Leak Detector to produce an effective and useful multi-purpose instrument. Designed specifically for Municipalities and Water Companies, the LC-5T assures pin-point detection of pipes, cables, mains and laterals and becomes a sensitive detector for water leaks simply by plugging in a crystal, rubber-encased microphone. Additionally, by a simple manipulation the new "Dualtronic" will pin-point valves, risers, boxes, and manhole covers. Now with transistors the versatile LC-5T is lighter, more sensitive, easier to operate, and it requires only flashlight batteries . . . Write today for further details on the "Dualtronic" and other Utility detection instruments.

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WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS SINCE 1933

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PROCESSED TO EXACTING SPECIFICATIONS
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any combination of them, can be accomplished simultaneously.

Model 50 is equipped with hydraulic "A" frame outriggers, the super-safety self-locking type. Power for operation of the crane is derived from the truck, through a power take-off and hydraulic pump. The pump is mounted directly on the power take-off. This eliminates the need to run an under-drive system, greatly simplifying installation.

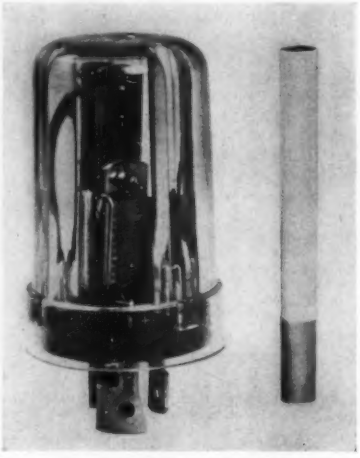
A 5-foot jib is available as an optional, as is a personnel platform. Many features that simplify maintenance procedure have been incorporated in the design of the Model 50.

Complete details on the Model 50, and on a 6,000-pound capacity Hydra-Lift, may be obtained from the manufacturer, PITMAN MFG. CO., 300 W. 79th TERRACE, KANSAS CITY, MO., or you may use the Post Card on the insert following Page 50. Circle No. 893.

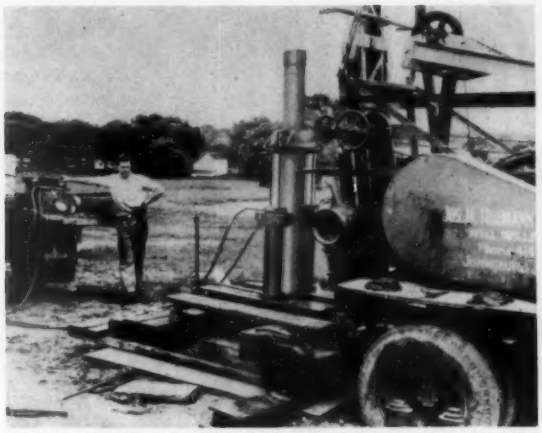
Photo Control for Outdoor Lighting

A photo control needs to be dependable, economical and inconspicuous. The Utilities Photo Control made by PRECISION MAGNETIC CONTROLS INC., 34 COTTAGE PL., RIDGEWOOD, N. J., is offered to meet these conditions. New York City is using close to 20,000 of them, and other cities and utilities, such as the Philadelphia Electric Co. and the Virginia Electric and Power Co., have hundreds.

The Utilities Photo Control has only two parts: a snap action relay and a cadmium sulphide photo cell. The control has a time delay of 20 to 120 seconds during the dark hours to prevent switching by headlights and other momentary light sources. The unit is maintenance-free and has a two-year guarantee. For additional information, write the company, or you may use the Post Card on the insert following Page 50. Circle No. 876.



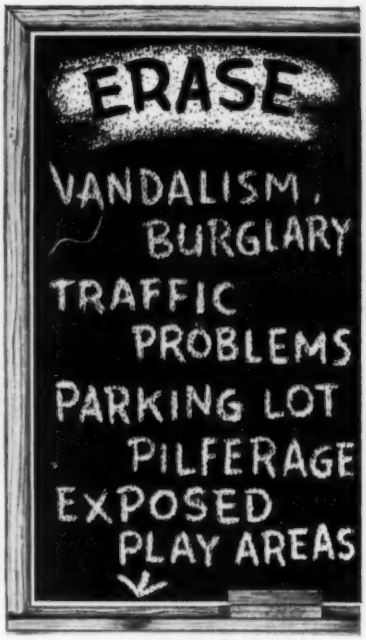
Reduces Cost of Pulling Well Casings



In this complete Greenlee hydraulic casing pulling installation, the high-pressure pump is located on the truck bed at the left. Two 80-ton hydraulic jacks are pulling the 8-inch casing at center of portal.

Municipally-owned water works using well supplies will be particularly interested in a compact, packaged unit that consists of hydraulic jacks powered by a gasoline engine-driven high-pressure power pump and pulls 8 feet of 8-inch well casing with a steady, uniform pull in only 30 minutes.

For maximum portability, the 10,000-psi high-pressure pump, which is powered by a 4½-hp gasoline engine, is mounted on a channel iron base. This enables the unit to be operated from a truck bed or directly on the ground at the job site. The pump is equipped with a 4 way valve that selects either the high-pressure advance stroke or the low-pressure return stroke to bring



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ANCHOR FENCE
Division of ANCHOR POST PRODUCTS, INC.

You can wipe the slate clean of most of the protection problems plaguing your school with one decision—installation of Anchor chain link Fence.

The long life and stability of Anchor Fence will meet with approving nods from the value-conscious members of the administration. Deep-driven anchors keep the fence firmly erect. Clean-cut, square corner post design eliminates potential toe holds. The steel chain link fabric is galvanized *after* weaving for extra life. Here's maximum security at low initial cost and virtually no annual upkeep. Call your local Anchor office for the complete Anchor story, or write: ANCHOR FENCE, 6902 Eastern Ave., Baltimore 24, Maryland.

Plants in: Baltimore, Md., Houston, Texas; and Whittier, Cal. • Sold direct from factory branches and warehouses in all principal cities

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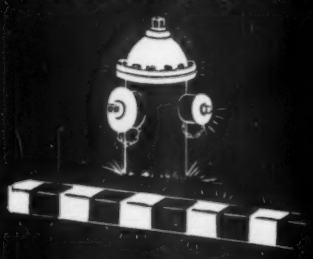
Fast with . . .
FLEX-O-LITE
Type H Safety Spheres



Now you can reflectorize your fire hydrants and curb areas for positive location at night . . . make each hydrant a gleaming beacon for greater safety. Type H Safety Spheres are easy to apply with ordinary traffic paint at just pennies per square foot. Write for details.

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P.O. Box 1066 | Affton Br. | St. Louis 23, Mo.

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IDLING CONTROL
EXTENDS ENGINE LIFE
REDUCES FUEL CONSUMPTION
LOWERS MAINTENANCE COST

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Winco Mite Model 1051B8S2D-1M9H
1500 watts, direct drive, 115 volts, 60 cyle, A.C. single phase.

Even with its light weight the WINCO MITE retains all the quality features of famous WINCO generators. Powered by a recoil starting Briggs and Stratton 4-cycle engine that can be conveniently serviced nation-wide. This new portable operates at 3600 RPMs and powers AC and AC/DC tools. Get all the facts on this new light weight WINCO quality Engine-Generator. **FULL LINE OF PORTABLE AND STAND-BY AC & DC PLANTS—300 WATTS TO 10 KW INCLUSIVE.**

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jacks back to starting position. Thus, positive control is certain and the possibility of slippage under load eliminated. Gauge and charts are available to prevent overstress of casing.

Either two or more jacks may be used to meet specific job requirements. Jacks are adaptable to casing clamps currently in use, minimizing the investment needed for a fully automatic installation. Each power stroke is 20 inches long; the operator is required only to loosen the clamp at the end of the stroke so that jacks can return to starting position for the next stroke. Hoses to both jacks and pumps are equipped with quick couplers for fast, easy setup in the field.

For additional information, write GREEN-LEE TOOL CO., ROCKFORD, ILL., or you may use the Post Card on the insert following Page 50. Circle No. 891.

Compact Power Tamper

The Kelley Model 18KT power tamper delivers 2,400 one-ton impacts per minute.

This self-propelled power tamper, designed for packing down earth backfill in trenches and around foundations and piers, and for blacktop paving and patching, delivers 2,400 one-ton impacts per minute. It is called the Model 18KT by its developer, the Kelley Machine Division of the Weisner-Rapp Co., Inc.

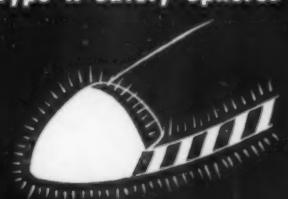
The Kelley power tamper has an 18-inch wide shoe, with a 24-inch also available. It is powered by a 4-cycle gasoline engine with 3.5 hp and has been equipped with shock-absorbing handles that do not transmit fatiguing vibration to the operator. A special heater attachment for the shoe of the Model 18KT can be furnished to prevent black top sticking to the shoe.

For additional information, write the company at 285 Hinman Ave., Buffalo 23, N. Y., or you may use the Post Card on the insert following Page 50. Circle No. 892.

YOUR Partner IN Safety

FLEX-O-LITE

Type H Safety Spheres



Tops in effective glass bead reflectivity—day or night. Easy to apply with ordinary traffic paint at just pennies per square foot. Full-time protection for utmost safety. Write for details.

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8301 Flex-O-Lite Drive
P.O. Box 3066 (Affton Br.), St. Louis 23, Mo.

THIS SELF-PROPELLED
Mark-Rite
LINE MARKER *Pays Its Own Way*

Users of the Mark-Rite Model 9,000 one man operated Line Marker report that it lays 25% to 50% more line per day than other machines.

Mark-Rite Model 9000 LINEMASTER automotive type clutch and differential with chain drive deliver maximum power with no slippage and will climb grades up to 20%.
This machine was designed for use in cities, airports, counties and for other heavy duty uses. Precision built throughout. Stripes 1, 2 or 3 lines solid or skip simultaneously. One or two colors. Paint capacity 10 to 60 gals. Automotive precision steering and "Hairline" spray control issues clean straight or curved lines, in widths from 2" to 6". It can turn on a 6-foot radius.
Accessories permit many other uses for this versatile machine, such as spray painting, insect and weed control spraying. Write today for literature or demonstration.

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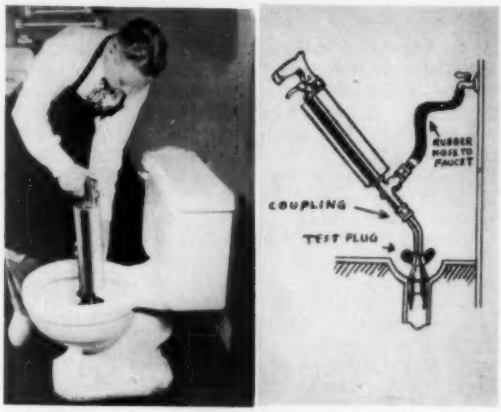
UNIVERSAL MANUFACTURING & SALES CO.
424 WEST Redondo Beach Blvd., Gardena, Calif.
Telephone DAvis 9-7528

New Way to Clean Clogged Drains and Sewers



By releasing 100 to 150 pounds of air pressure on a solid shaft of water, this new, all-purpose Plumbers Flushing Gun instantly unclogs sewers and drains (up to 200 feet), ridding them of grease, sand, roots, rags, and other obstructions.

The unit is simple to operate (see diagram above) and eliminates the necessity of removing wall or pipe, grease trap or cross piece. It is designed to clean difficult stoppages, at the same time effecting considerable savings in plumbing bills.

A free booklet, which fully describes the Flushing Gun and its operating principle, may be obtained by writing to the manufacturer, MILLER SEWER ROD CO., DEPT. AM-2, 4642 N. CENTRAL AVE., CHICAGO 30, ILL., or by using the Post Card on the insert following Page 50. Circle No. 885.

Big tool boxes hold full set of tools; fuel tank holds 8 hours' supply. Radiator shutters adjust to weather. Pneumatic tired retractable dolly is standard.

Jobs go smoother with a Jaeger Rotary

All users notice the difference. Jaeger's slower running speed (only 1700 rpm @ full load) consumes less fuel; better control holds pressure constant; air is 100° cooler than with old-type compressors; the machine is smoother, quieter, simple to operate, easy to move. Ask your Jaeger distributor to show you, or send for Catalog JCR8.

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HIGH-DENSITY OVERLAID PLYWOOD

SIGN BLANKS

- Finest sign base material available. Stiffer, stronger, more durable than steel or aluminum.
- Costs* ⅓ to ½ less than aluminum. (24" STOP blank, for example, is only $1.80 fob Tacoma).
- Hard plastic-like overlay needs no paint protection. Cuts finishing costs. Reflective sheeting may be applied direct; no prime coat needed.
- Overlay is impervious to moisture. Provides excellent paint base where special colors are desired.
- Available in all standard sign shapes and sizes. Colors: black, amber. Also full-size panels up to 4' wide, 24' long.

PlyGlaze withstands vandalism damage that would knock metal out of service.

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About People

The Board of Directors of **Mueller Co.**, Decatur, Ill., announces the election of Dan R. Gannon to the position of vice-president and general sales manager. Mr. Gannon, who has served as general sales manager since December 1957, joined Mueller Co. in 1929 as a sales representative. In 1953, he became southwest sales manager, with headquarters in Dallas, Texas, and in 1955, was appointed western sales manager, with offices in Los Angeles, Calif. In April 1957 he returned to Decatur to assume the position of field sales manager, and served in that capacity until December of that year.

D. R. Gannon

De Leuw, Cather & Brill, Engineers-Architects, 202 E. 44th St., New York 17, N. Y., announces that Benjamin Gray is now a general partner of the firm.

The appointment of David J. Davis as director of sales and advertising for **Gar Wood Industries,** Wayne, Mich., is made known by Edward F. Fisher, company president.

Glenn S. Park is now chief development engineer for the Body and Hoist Division of **The Heil Co.,** Milwaukee, Wis., which manufactures and markets hydraulic truck equipment, including dump truck bodies and hydraulic hoists, elevating truck tailgates sold under the trade name of "Heiloader," the Colectomatic refuse collection truck body, and other specialized units.

The Toledo Pipe Threading Machine Company, 1445 Summit St., Toledo 4, Ohio, announces the appointment of Norman J. Kirk as president and general manager. According to a company spokesman, Mr. Kirk's practical background in machine and tool manufacturing will play an important part in the company's ever-expanding program.

N. J. Kirk

Simultaneously with its decision to open a new branch in Phoenix, Ariz., the engineering firm of **Fay, Spofford & Thorndike, Inc.,** 11 Beacon St., Boston, Mass., announced the appointment of five directors to the office of vice president. They are: Edward C. Keane of West Roxbury, Burdette K. Beebe of Newton Highlands, Fozi M. Cahaly of Arlington, Leon B. Turner of Ipswich, and Harold H. Jones of Swampscott.

The appointment of Col. Wright Hiat, Corps of Engineers, U.S.A. (ret.) to the post of managing engineer for the Atlantic-Gulf Division of **The Asphalt Institute** is announced by J. E. Buchanan, Institute president.

Col. Hiatt, with Division headquarters at New York City, will direct Institute engineering activities in twenty coastal and southern states, ranging from Maine to Louisiana. He will supervise engineering services at District offices in New York, Boston, Albany, Harrisburg, Richmond, Atlanta, Montgomery, and New Orleans.

Barge, Waggoner & Sumner, Consulting Civil Engineering firm of Nashville, Tenn. announces the association of Wm. Hunter Owen, Assistant Director of the Division of Sanitary Engineering of the Tennessee Department of Public Health, as an associate member of the firm.

George N. Proctor, general manager of the Permutit Division of Pfaudler Permutit Inc., announces the appointment of J. M. Hultz to the position of general manager of **Simplex Valve & Meter Co.,** a subsidiary of Pfaudler Permutit Inc. He replaces E. M. Jones, resigned.

Van B. Phillips has been elected vice-president of sales and advertising of the **Recordak Corporation,** it has been announced by John K. Boeing, president of Recordak. He was previously general sales manager of Recordak, which is the subsidiary of Eastman Kodak Company in the microfilming and document copying fields.

V. B. Phillips

J. Robert Krebs, formerly a district sales manager of Dean Brothers Pumps of Indianapolis, Ind., has been named sales manager of the pump division of **Yeomans Brothers Co.,** Melrose Park, Ill.

Word has been received of the death of Roy C. Kuehneman, general sales manager and a director of **Good Roads Machinery Corp.,** Minerva, Ohio.

Personnel changes at **Chicago Bridge & Iron Co.,** Chicago, Ill., include the transfer of Richard D. Ayers of the Chicago sales office, to the Boston office, Robert L. Blandford from the general sales office in Chicago to the Tulsa office, James T. Dunn from the Chicago office to the Philadelphia sales office, and Donald F. Simons to the Chicago sales office. William C. Roberts, with CB&I since 1950, has been appointed superintendent of the company's plant at Greenville, Pa.

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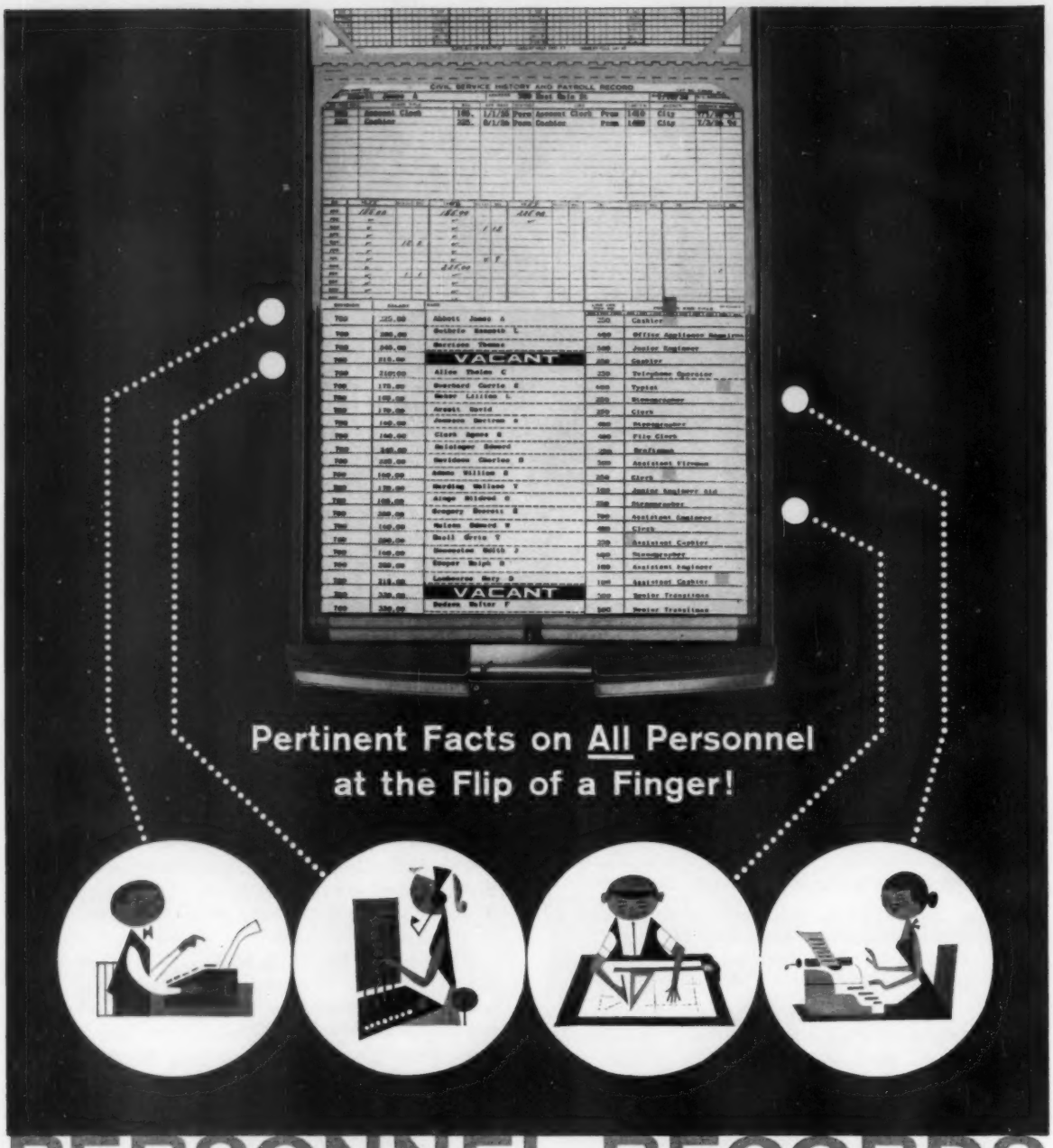

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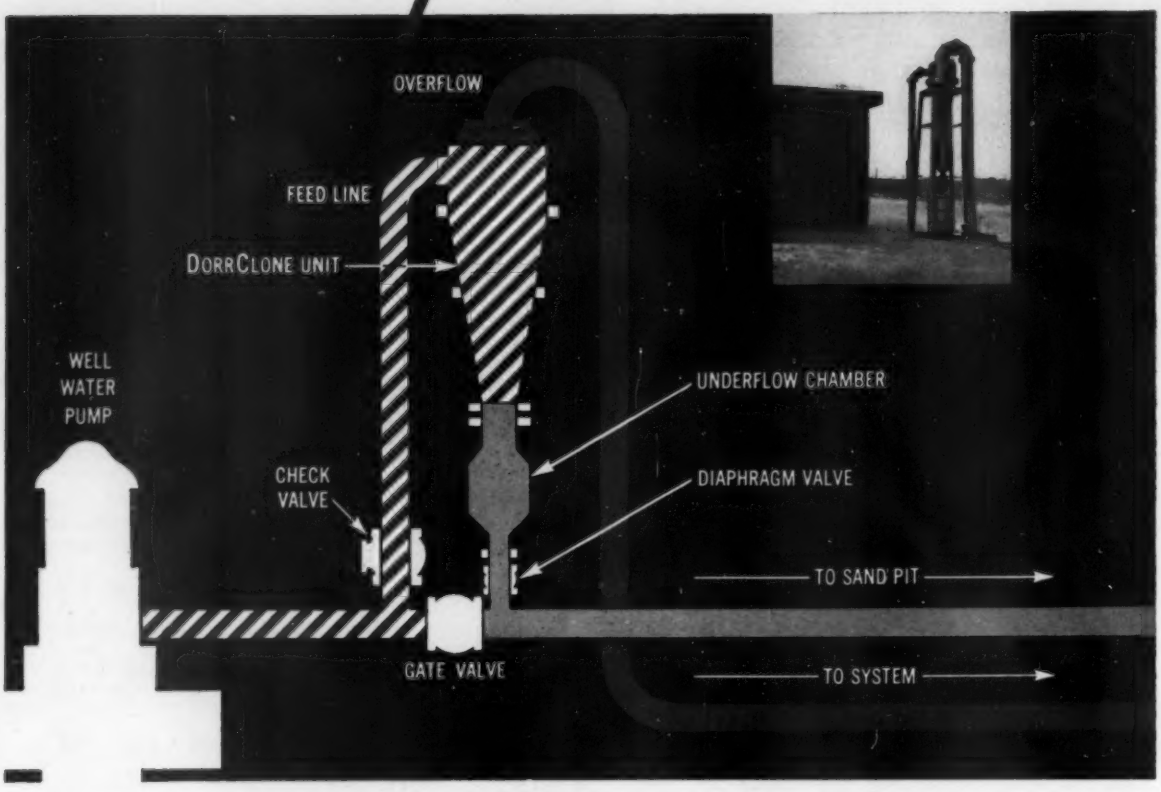

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For "Containerized" Refuse . . .

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The DEMPSTER-DUMPMASTER is versatile . . . can be used on hand-loading routes when it is not handling containers. It's SAFE! . . . lifting arms bridge the cab windows at all times . . . no chance of injury to driver's head or arms. Write today for complete information.

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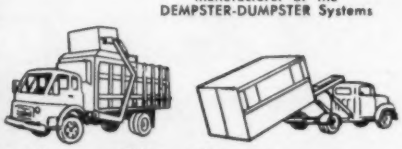

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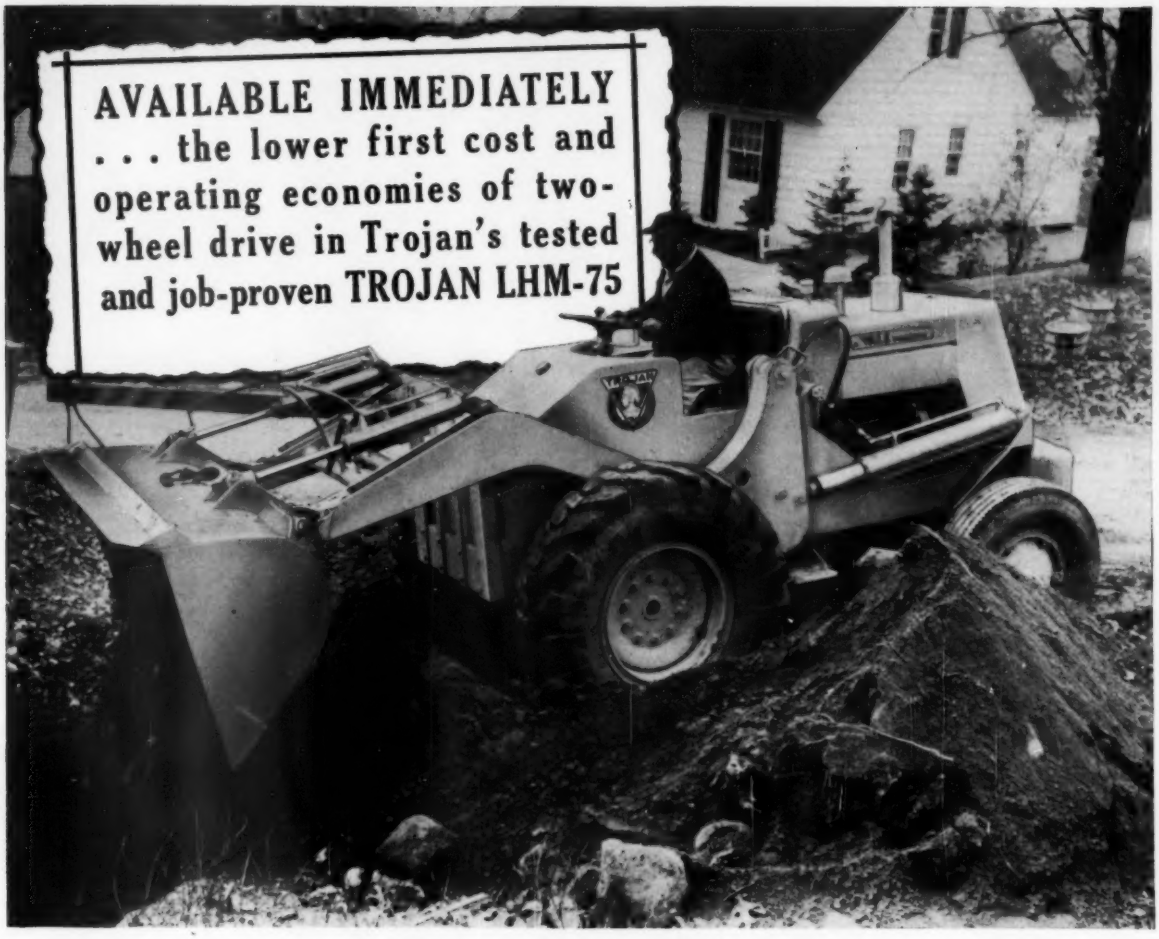
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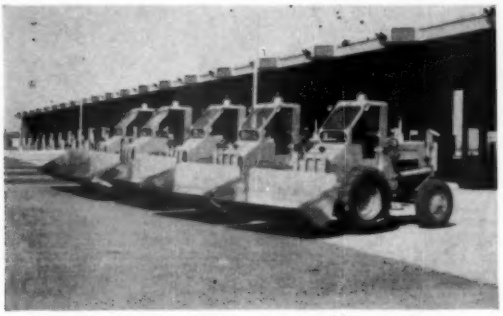

Counties, municipalities, toll road and bridge authorities are using fleets of LHM-75s for peak performance and versatility with maximum economy on year 'round operations.

Low first cost, lower operating costs . . . these are two 'musts' that contractors and public officials can depend on with the Trojan LHM-75 tractor shovel . . . Alone, these two factors are reason enough for the LHM-75 to be on the job . . . It does more jobs faster, at less cost because it incorporates big machine features with the operating economy of two-wheel drive . . . With the 1¼ yard LHM-75, you get the advantages of a big, efficient tractor shovel with a variety of quick-change attachments (back-hoe, crane hook, pallet forks, snow plow, bulldozer blade, enclosed cab) that let you forget about maintaining a yard full of expensive, specialized equipment . . . Contact your local Trojan distributor, he'll be glad to arrange a competitive demonstration — any place, any time — so that you can see outstanding performance and judge for yourself.

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Eliminates need for specialized land-clearing rig

Vermont town does difficult road-widening job with veteran Michigan Tractor Shovel

In cities all across the country, Michigan Tractor Shovels are proving effective for handling work once considered much too difficult for rubber-tired equipment. Some Michigans, for example, are handling landfill refuse disposal. Others are digging pit-run gravel. Others are breaking out and loading concrete. Now here is another dramatic application...

The town involved, Bethel, in central Vermont, recently began a program to widen its back roads. It looked like time to buy a new machine—a rugged rig that could cut down high banks in soil typical of New England—studded with rocks, stumps and trees up to 18 inches in diameter.

Driven in from trenching job

But first, Town Manager Roy Kane decided to try the town's existing equipment. After all, his very versatile Tractor Shovel already had handled a half dozen tough jobs. Maybe it could take on one more. The machine—a 1¼ yd Michigan Model 75A—was regularly loading pit-run sand and gravel into trucks, digging trenches for culverts, and picking up snow.

Breaks out, loads 60 yds hourly

From pit-run assignment, out to a typical narrow road it drove. Stumps, trees and imbedded rocks were tackled first ... successfully! Michigan's four wheel drive, down-pressure and powerful digging ability made quick work of this rugged assignment. Loading went just as quickly. Each pass scooped about a yard of brush, roots and dirt... each hour saw 15 to 20 four-yard haul trucks loaded and sent on their way.

Results: Chalk up one more chore easily handled by a Michigan Tractor Shovel and one less machine the Town of Bethel had to buy.

Average Weekly Operating Costs
Recent 9-month dirtmoving season

RUNNING EXPENSES		RESERVES	
Fuel	$10.00	Depreciation	$32.50
Lubrication	1.05	Insurance	.65
Repairs (machine 2½ yrs old)	1.85	Interest	6.75
Tires, Tubes	None	Taxes	None
Operator's Wages	92.50		

Backhoe Boosts Versatility

Digs 12 ft deep, digs and dumps at any angle up to 95°, right or left. Fits all Model 75 Michigans. Also available... sweeper; fork lift; crane hook; scarifier; "V," straight, blower-type snow plows; wide variety of special buckets.

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